

PAPERS

OF THE

PEABODY MUSEUM OF AMERICAN ARCHAEOLOGY
AND ETHNOLOGY, HARVARD UNIVERSITY

VOL. XVI—No. 2

CONTRIBUTIONS TO THE RACIAL
ANTHROPOLOGY OF THE
NEAR EAST

BY

CARL C. SELTZER

BASED ON DATA COLLECTED BY

HENRY M. HUXLEY



WITH A FOREWORD BY HENRY M. HUXLEY

573.6095

Sel / Hux

1222

CAMBRIDGE, MASSACHUSETTS, U.S.A.

PUBLISHED BY THE MUSEUM

COPYRIGHT, 1940
BY THE PRESIDENT AND FELLOWS OF HARVARD COLLEGE

PRINTED BY THE GEORGE BANTA PUBLISHING COMPANY
MENASHA, WISCONSIN, U. S. A.

CONTENTS

FOREWORD	v
NOTE	ix
INTRODUCTION	1
BEDAWINS	5
MOSLEMS	15
SAMARITANS	23
TURKOMANS	31
MARONITES	37
DRUSE	43
NUSAIRIYEH	47
GREEK ORTHODOX	51
GYPSIES	57
CONCLUSION	60
BIBLIOGRAPHY	62

LIST OF TABLES

1. Groups Analyzed in this Study	2
2. Bedawin Males: Measurements, Indices and Observations	6
3. Bedawin Females: Measurements, Indices and Observations	8
4. Bedawin Males by Eye Color	9
5. Comparison between Bedawin Males and Other Near Eastern Groups	11
6. Moslem Males: Measurements, Indices and Observations.	17
7. Moslem Males by Eye Color	18
8. Comparison between Moslem Males and Other Near Eastern Groups	20
9. Samaritan Males: Measurements, Indices and Observations.	24
10. Samaritan Males by Eye Color	27
11. Comparison between Samaritan Males and Other Near Eastern Groups	28
12. Turkoman Males: Measurements, Indices and Observations.	32
13. Turkoman Females: Measurements, Indices and Observations.	33

14. Comparison between Turkoman Males and Other Near Eastern Groups.	35
15. Maronite Males: Measurements, Indices and Observations	38
16. Maronite Females: Measurements, Indices and Observations	39
17. Comparison between Maronite Males and Other Near Eastern Groups.	41
18. Druse Males: Measurements, Indices and Observations	44
19. Druse Males by Eye Color	45
20. Comparison between Druse Males and Other Near Eastern Groups.	46
21. Nusairiyeh Males: Measurements, Indices and Observations	48
22. Comparison between Nusairiyeh Males and Other Near Eastern Groups	50
23. Greek Orthodox Males: Measurements, Indices and Observations.	52
24. Greek Orthodox Males by Eye Color	53
25. Comparison between Greek Orthodox Males and Other Near Eastern Groups.	54
26. Gypsy Males: Measurements, Indices and Observations	58

LIST OF PLATES

1. Bedawins
2. Moslems
3. Samaritans
4. Turkomans
5. Maronites
6. Nusairiyeh
7. Greek Orthodox
8. Gypsies

FOREWORD

THE material which forms the basis of this report was collected during a residence of a year and a half in Syria and Palestine (1900-1901). The work was begun on the second trip of Mr. Howard Crosby Butler's expedition,¹ and was continued for another year after the return to America of the other four members of the party.² This additional work was made possible by the generosity of the original donors of the expedition, and finally through the support and unfailing interest of Mr. B. T. B. Hyde of New York.

Before starting for the interior I had the opportunity, through the courtesy of the officers of the Syrian Protestant College at Beirut, to make a number of observations on the students of that institution. The route and general features of Mr. Butler's expedition have been described in the reports of the other members. Suffice it to say that the general route was through northern and central Syria: north from Beirut to the vicinity of Aleppo, south-east through the desert to Palmyra and finally through the Haurân. On this trip the fellāhîn, the Bedawins and the Druse were the principal groups studied.

After the departure of the other members of the expedition in June, 1900, I went to Bhamdûn, a small village of the Lebanon; here I remained three or four months, engaged entirely in the study of the Arabic language.³

From the middle of October until the middle of December a second trip was made through northern and central Syria. From Beirut we went to Damascus and then north to Homs. Stopping at several villages on the way, I was enabled to make observations on the fellāhîn. We travelled through the desert to the east of Homs for about three weeks, spending the time among the fellāhîn of the plain and several tribes of the Anezî Bedawins. After visiting Hama we again entered the desert, marching north to

¹ Butler, H. C. "Report of an American Archaeological Expedition to Syria 1899-1900." *American Journal of Archaeology*, second series. *Journal of the Archaeological Institute of America*, vol. IV, no. 4, pp. 415-440. New York, 1900.

² Huxley, H. M. "Preliminary Report of an Anthropological Expedition to Syria." *American Anthropologist*, n. s., vol. 4, no. 1, pp. 47-51. New York, 1902.

³ Huxley, H. M. "Syrian Songs, Proverbs and Stories." *Journal of the American Oriental Society*, vol. XXIII, pp. 175-288. New Haven, 1902.

is-Saffreh and then east to the Euphrates at Meskinah. This region was inhabited almost exclusively by nomadic tribes of Bedawins, or fellāhīn of Bedawin descent.

From Meskinah we proceeded in a northwesterly direction to Membej and then through the country of the Turkoman to Aintab. Again turning south we passed through Aleppo and then west into Jebel in-Nusairiyeh. The people of this mountainous section were at the time among the fiercest and most lawless of any in Syria. We were not molested, however, and even succeeded in measuring and photographing a number of the inhabitants. We reached the sea at Jebleh and then turned along the coast to Beirut.

The Samaritans of Nâblus, the ancient Shechem, seemed to us in many ways to be one of the most interesting groups of people in Syria. For three weeks I remained at Nâblus studying these people. After innumerable delays, which involved hours of talking and writing, I finally succeeded in obtaining measurements and photographs of forty-three Samaritans, in addition to a cast of the face of one of the sons of the High Priest. On account of the great historical interest which is almost universally felt in the Samaritans, the series of observations which we obtained may be counted as one of the most important results of the expedition.¹

From the first of April, 1901, until the last of May we made a trip through Palestine, east and west of the Jordan. From Beirut we passed southeast through Banyâs, Kunêtrah, Simlīn and Khufsīn to Sumakh, on the southern shore of the Lake of Galilee. After visiting the most important of the Graeco-Roman ruins east of the Jordan, we marched south through Karak to Petra, the rock-bound city of the desert which was lost for many years and only rediscovered by Burkhardt in the early part of the nineteenth century. Returning from Petra to the same town of Taffleh we descended from the plateau by a most precipitous and dangerous path to the Ghôr, or valley, returning south from the Dead Sea. After crossing the Ghôr we marched north to Hebron and then went through western Palestine stopping at Bethlehem, Jerusalem, Jericho, Nâblus and 'Akka as the principal places. From 'Akka we returned to Beirut along the coast. The people en-

¹ Huxley, H. M. "The Samaritans: Anthropology." *The Jewish Encyclopedia*, vol. 10, pp. 675-676. New York, 1915.

countered on this trip were mainly the fellāhīn and Bedawins. A hurried trip was then made to Karyatēn, where observations were made on a few members of Arab is-Slēb, a small tribe of Arabs about whose origin there is much speculation. At Jerusalem we made observations on the Syrian Gypsies.

The anthropological collection of the expedition consisted mainly of crania, casts and a series of costumes representative of the different parts of Syria. This material is deposited in the American Museum of Natural History in New York.

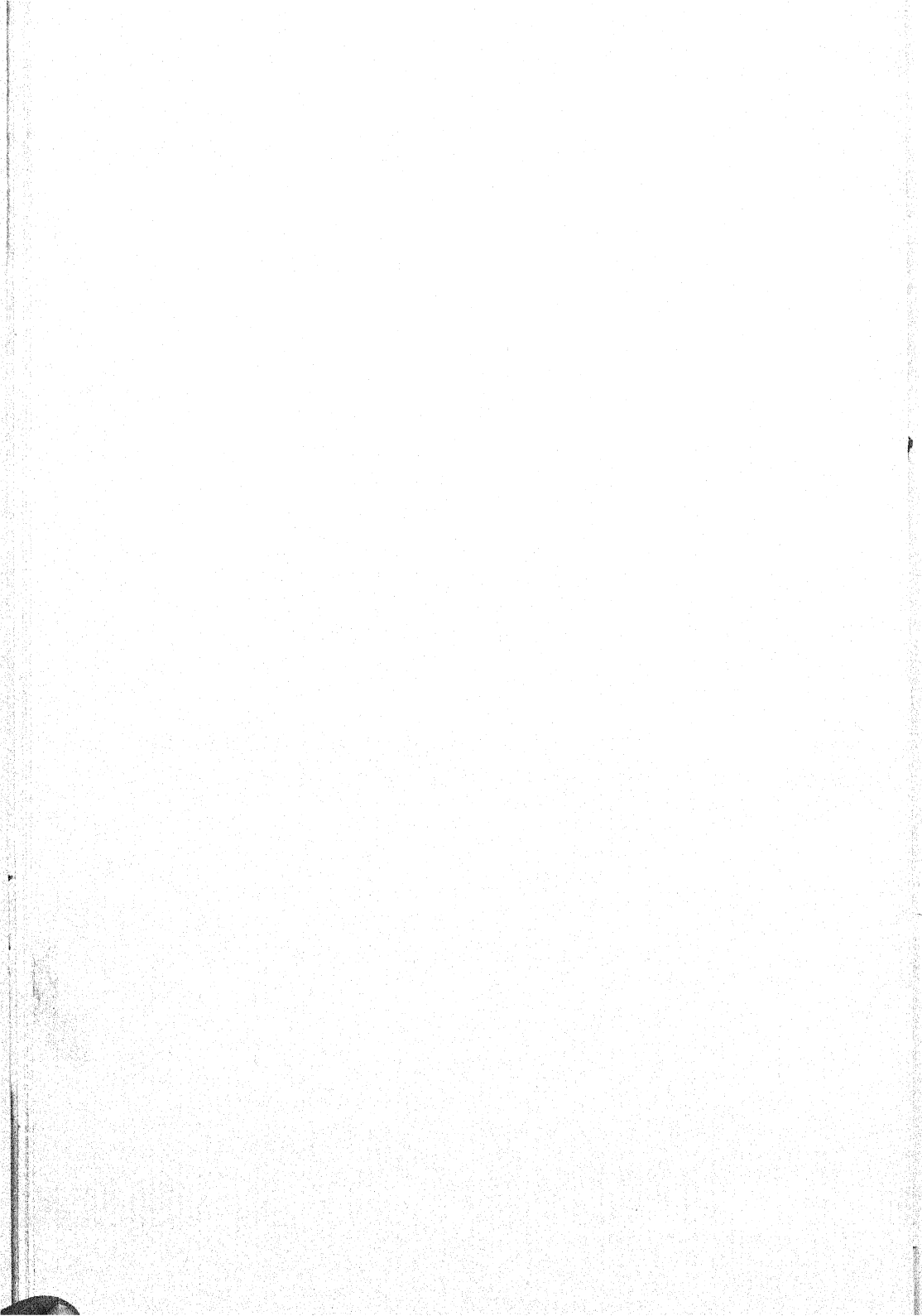
On account of the pressure of other duties, it became impossible for the writer to perform all of the detailed work necessary for the preparation for publication on the large series of data gathered in Syria. This task has perforce been delegated to the staff of the Peabody Museum of Harvard University who are keenly interested in the anthropology of the Near East.

I desire to express my obligation to the late Professor Frederic Ward Putnam of the Peabody Museum of Harvard University for his continued interest in the work of the expedition. My thanks are due to Dr. Franz Boas of New York for the valuable assistance rendered me in preparation for the work in Syria, and to the late Dr. Albert E. Post of Beirut, Syria, for his ever ready aid and advice, drawn from his extensive and, in fact, well-nigh unexcelled knowledge of the people and country of Syria and Palestine.

My heartiest appreciation is also due to the staff of the Peabody Museum, and especially to Dr. Carl C. Seltzer, for the study and preparation for publication of the measurements which were made on the various peoples of Syria and Palestine.

HENRY M. HUXLEY

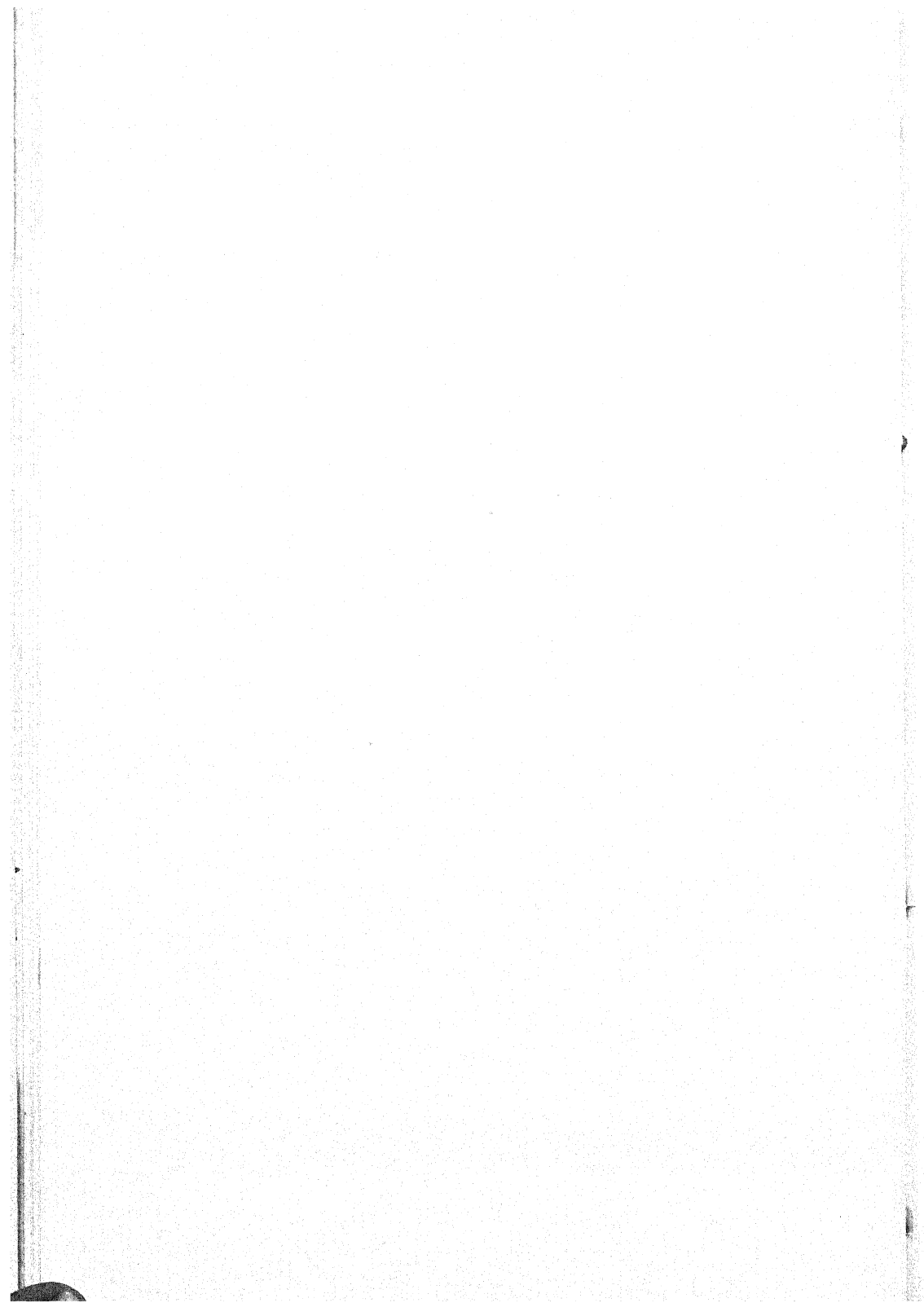
Chicago, Illinois
1939



NOTE

SEVERAL individuals, as well as institutions, are responsible for the appearance of this manuscript in its present form. To these the author has already personally expressed his grateful appreciation. Public acknowledgment of their many kindnesses are due, nevertheless, to Mr. Donald Scott, Director of the Peabody Museum of Harvard University; Professor Earnest A. Hooton, Chairman of the Division of Anthropology of Harvard University; Dr. Henry Field, Curator of Physical Anthropology at the Field Museum of Chicago; Professor Carleton S. Coon of Harvard University; and to Mr. M. S. Abourjaily. Especial acknowledgment is given to Mr. Henry M. Huxley, who was responsible not only for the collection of the data but also for initiating interest in the material.

CARL C. SELTZER



INTRODUCTION

THE analysis of the data to be presented herewith has been to this writer a constant source of interest, satisfaction and surprise. It is particularly a surprise in the sense that seldom does one encounter anthropometric material collected in the early 1900's which is so important and so fruitful in its scope and implications and so extensive in the variety of measurements. These records are all the more significant in that they represent a survey of an area where good anthropometric data are particularly scanty, and also they were made at a time when certain groups of people were still identifiable as units and miscegenation had not progressed to its present intricacy. For it is only within the very last few years that physical anthropologists like Field, Coon, Hughes and Shanklin, trained in modern methods, have awakened to the racial importance of the Near Eastern area and have begun to compile large bodies of suitable data.

All of the raw material on which this study is based was collected by Mr. Henry M. Huxley, formerly a very keen student of Arabic linguistics and folklore. In 1900 and 1901 Mr. Huxley, as a member of the Howard Crosby Butler Archaeological Expedition to Syria, availed himself of the opportunity to examine, measure and photograph many groups of people in the area now identified as Syria, Lebanon, Palestine and Transjordan.¹ His anthropometric training for this work was derived from the laboratories of Professor Franz Boas of Columbia University and Professor F. W. Putnam of the Peabody Museum of Harvard University.

Many more individuals were examined by Mr. Huxley than are to be found listed in this study, but for reasons of age, size of series, question of ethnic classification, et cetera, the data were finally resolved into the groups given in Table 1. All the subjects in these groups are of adult age.

The Bedawin group consists of all Bedawin individuals not otherwise classified as to tribal affiliation. The Moslems are a general group containing all subjects of Moslem faith who are not Bedawins or who do not belong to other categories in our list.

¹ These photographs, which are unusually clear, should be of special interest considering their age and the conditions under which they were taken.

The classification of the Samaritans, Turkomans, Druse and Gypsies should be perfectly clear and definite. The Nusairiyeh are agriculturists who live in the Nusairiyeh mountains and belong to the Shiite Moslems. The Greek Orthodox category contains a heterogeneous assortment of individuals with the common bond of confessing the Greek Orthodox faith. The wisdom of these groupings has been satisfactorily established, as the reader

TABLE 1. GROUPS ANALYZED IN THIS STUDY

	Number of individuals	
	Male	Female
Bedawins.....	115	14
Moslems.....	258	
Samaritans.....	38	
Turkomans.....	19	6
Maronites.....	31	26
Druse.....	46	
Nusairiyeh.....	25	
Greek Orthodox.....	91	
Gypsies.....	11	

may soon see, by their physical distinctiveness and their metric homogeneity.

The following is a list and a very short description of the measurements and indices to be found in the analysis of the various Near Eastern groups of this study:

1. Stature.....standing height without shoes taken with anthropometer.
2. Head length....maximum glabello-occipital length taken with spreading caliper.
3. Head breadth....maximum bi-parietal breadth taken with spreading caliper.
4. Head height.....from middle of the auditory meatus to vertex taken with collector's own head height instrument.
5. Minimum frontal diameter.....minimum breadth between the frontal crests taken with spreading caliper.
6. Inter-ocular diameter.....diameter between the internal palpebral margins taken with spreading caliper.

7. Bizygomatic
diameter..... maximum diameter between zygomatic
arches taken with spreading caliper.
8. Physiognomic face
height..... distance between hairline and menton
taken with sliding caliper.
9. Total face height..... distance between nasion and menton
taken with sliding caliper.
10. Upper face height..... distance from nasion to mouth taken
with sliding caliper.
11. Nose height..... distance from nasion to junction of up-
per lip and septum taken with sliding
caliper.
12. Nose breadth..... distance between alae of nose horizon-
tally taken with sliding caliper.
13. Mouth breadth... breadth of mouth from corner to corner
taken with sliding caliper.
14. Lip thickness.... vertical distance from junction of upper
integumental and membranous portion
of lips to the junction of lower integu-
mental and membranous portions, tak-
en with sliding caliper.
15. Ear length..... maximum vertical length of the ear
taken with sliding caliper.
16. Hand squeeze.... maximum hand squeeze taken with
hand dynamometer.
17. Cephalic index... head breadth \times 100 divided by head
length.
18. Length-height
index..... head height \times 100 divided by head
length.
19. Breadth-height
index..... head height \times 100 divided by head
breadth.
20. Fronto-parietal
index..... minimum frontal diameter \times 100 di-
vided by head breadth.
21. Cephalo-facial
index..... bizygomatic diameter \times 100 divided by
head breadth.

4 RACIAL ANTHROPOLOGY OF THE NEAR EAST

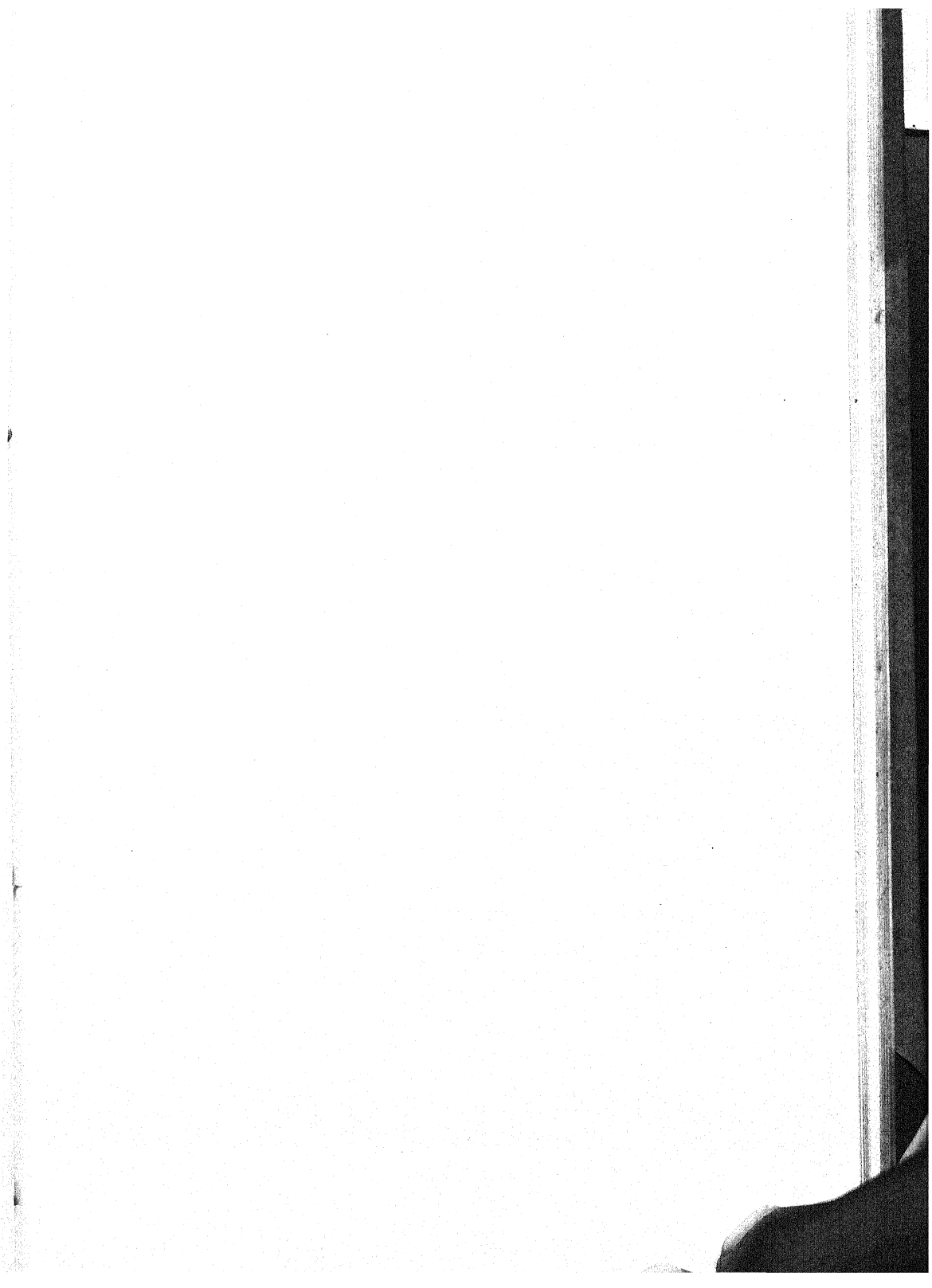
22. Zygo-frontal
index..... minimum frontal diameter $\times 100$ divided
by the bizygomatic diameter.
23. Total facial index. total face height $\times 100$ divided by the
bizygomatic diameter.
24. Upper facial
index..... upper face height $\times 100$ divided by the
bizygomatic diameter.
25. Nasal index..... nose breadth $\times 100$ divided by nose
height.

In addition to the above measurements and indices, graded observations have been tabulated with respect to hair color, eye color and skin color on exposed and unexposed parts of the body.

The technique and accuracy of the measuring seem to have been on the whole quite good. There are, however, one or two exceptions which must be considered. After a careful examination of the photographs as well as the means of the measurements themselves, it appears to this writer that Huxley failed to find the nasion point accurately. All the evidence points to an erroneously low determination of the junction of the nasal and frontal bones. Accordingly throughout this analysis the reader must keep in mind the fact that the mean total facial heights and the nose heights are probably several millimeters too small. The upper face height dimension, however, is quite possibly comparable to nasion-prosthion height, inasmuch as the unduly low placing of the nasion point is somewhat offset by the distance between prosthion and the junction of the lips. As far as head height is concerned little can be said with confidence. The means are truly very high, but from known facts as well as from the evidence of the photographs of this series of people, it appears that they do possess unusually high cranial vaults.

The usual statistical constants were calculated for all the measurements and indices. The letters "S.D." and "C.V." refer to the standard deviation and the coefficient of variation respectively. All the probable errors were computed with the assistance of Pearson's table of X_1 and X_2 .¹

¹ Pearson, 1924.



Age
 Statu
 Head
 Head
 Head
 Min.
 Inter
 Bizyg
 Phys
 Total
 Upper
 Nose
 Nose
 Mouth
 Lip th
 Ear l

Hand
 Hand

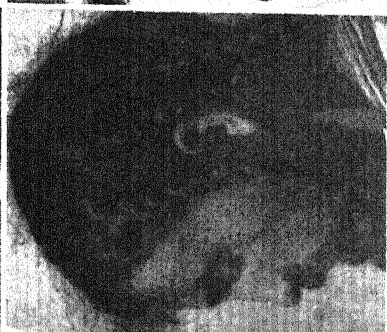
Ceph
 Leng
 Bread
 Front
 Ceph
 Zygo
 Total
 Upper
 Nasal

Blas
 Dar
 Bro
 Gra
 Wh

Tot

Dar
 Bro
 Ha
 Gra
 Blu

Tot



THE BEDAWINS OF THE NEAR EAST

Our Bedawin series consists of 115 males and 14 females of adult age; the males range from 18 to 65 years and the females from 20 to 59 years. If we may consider homogeneity of pigmentation of hair and eyes as an indication of purity of this stock, then it may be said that our Bedawin series is unusually homogeneous. Out of 113 males recorded for eye color only 12, or approximately 10 per cent, fall into the mixed light eye classification including gray, blue and hazel eyes, the vast majority showing the straight brown forms. Only 1 of the 14 female Bedawins presents a mixed light eye color and this is tabulated as hazel. With respect to hair color the male Bedawins show virtually 90 per cent of their numbers with black, dark brown and brown head hair colors; the remaining 10 per cent possess gray and white hair. All of the 14 females have either black or dark brown hair. If we compare our pigmentation data with that of Shanklin's Akeydat and Maualy Bedawins, we find the Bedawins measured by Huxley to be considerably more homogeneous. As many as 46 per cent of the Akeydat Bedawins are recorded by Shanklin as having mixed light eyes and about 23 per cent of the Maualy have been observed to show this same condition.¹ This superior homogeneity of our Bedawin series is not confined alone to pigmentation, for with respect to metric and indicial features the Huxley data are certainly less heterogeneous than Shanklin's Akeydat Bedawins, and possibly less variable than the Maualy group. As far as skin color is concerned, we find that, according to Table 2, the predominant tones for the unexposed parts are reddish brown in approximately one-third of the male Bedawin group and some shade of yellow in somewhat less than one-half of the total number. The reddish brown takes the form of light red brown and copper color, while the yellow is an olive yellow and a yellowish white. The tanning differential as indicated by the color of the skin on the exposed parts is not excessive. The considerable increases, however, in the copper colored and light brown categories are quite notable.

The Bedawin males of this study are of moderate stature with a mean of 166.86 centimeters. Out of the 112 individuals in this

¹ Shanklin, 1936.

CONTRIBUTIONS TO THE

TABLE 2. BEDAWIN MALES

MEASUREMENTS, INDICES AND OBSERVATIONS

MEASUREMENTS	No.	Range	Mean	S.D.	C.V.
Age.....	106	18- 65	38.85±0.97	14.75±0.68	37.97±1.76
Stature.....	112	152-187	166.86±0.38	6.03±0.27	3.61±0.16
Head length.....	115	164-202	189.09±0.34	5.46±0.24	2.89±0.13
Head breadth.....	115	135-155	144.46±0.27	4.32±0.19	2.99±0.13
Head height.....	114	114-153	134.50±0.42	6.68±0.30	4.97±0.22
Min. frontal diam....	115	93-116	103.42±0.27	4.24±0.19	4.10±0.18
Inter-ocular diam....	115	25- 39	31.40±0.17	2.76±0.12	8.79±0.39
Bizygomatic diam....	115	120-149	135.30±0.33	5.30±0.24	3.92±0.17
Physiognomic face ht.	49	159-206	182.16±0.91	9.48±0.65	5.21±0.35
Total face height....	115	100-144	119.70±0.44	7.00±0.31	5.85±0.26
Upper face height....	115	60- 89	74.05±0.31	4.90±0.22	6.28±0.28
Nose height.....	115	40- 63	52.70±0.22	3.56±0.16	6.76±0.30
Nose breadth.....	115	28- 48	36.41±0.19	3.00±0.13	8.24±0.37
Mouth breadth.....	86	40- 61	52.70±0.26	3.58±0.18	6.79±0.35
Lip thickness.....	85	6- 23	14.74±0.23	3.14±0.16	21.30±1.10
Ear length, right....	61	53- 76	63.40±0.44	5.10±0.31	8.04±0.49
Hand squeeze, right..	108	14- 61	37.14±0.65	9.96±0.46	26.82±1.23
Hand squeeze, left...	107	8- 61	35.49±0.70	10.74±0.50	30.26±1.40
INDICES					
Cephalic index.....	115	68- 88	76.29±0.19	2.97±0.13	3.89±0.17
Length-height index.	114	61- 81	71.09±0.23	3.63±0.16	5.10±0.23
Breadth-height index	114	79-108	93.14±0.32	5.04±0.23	5.41±0.24
Fronto-parietal index	115	63- 80	71.56±0.17	2.67±0.12	3.73±0.17
Cephalo-facial index.	115	85-105	93.65±0.22	3.42±0.15	3.65±0.16
Zygo-frontal index...	115	68- 87	76.66±0.20	3.12±0.14	4.07±0.18
Total facial index....	115	70-109	88.60±0.39	6.15±0.27	6.94±0.31
Upper facial index....	115	46- 66	54.74±0.22	3.42±0.15	6.25±0.28
Nasal index.....	115	48- 95	69.46±0.44	7.04±0.31	10.14±0.45
OBSERVATIONS					
Hair Color	No.	%	Skin Color (unexposed)	No.	%
Black.....	81	74.32	Copper colored....	8	8.08
Dark brown.....	16	14.68	Olive yellow.....	27	27.27
Brown.....	1	.92	Yellowish white....	16	16.16
Gray.....	10	9.17	Pale white.....	1	1.01
White.....	1	.92	Light brown.....	19	19.19
Total.....	109	100.01	Light red brown...	28	28.28
			Total.....	99	99.99
Eye Color			Skin Color (exposed)		
Dark brown.....	20	17.70	Dark yellow brown.	1	.93
Brown.....	81	71.68	Copper colored....	27	25.00
Hazel.....	4	3.54	Olive yellow.....	21	19.44
Gray.....	6	5.31	Yellow white.....	5	4.63
Blue.....	2	1.77	Light brown.....	43	39.81
Total.....	113	100.00	Light red brown...	3	2.78
			Others.....	8	7.41
			Total.....	108	100.00

group only about 15 per cent may be classified as tall with standing heights greater than 172 centimeters. By far the great majority group themselves between 164 and 172 centimeters. In absolute head dimensions the Bedawins are fairly long, distinctly narrow and high. The mean cephalic index of 76.29 places the Bedawins in the dolichocephalic class. Only 3 out of 115 males have brachycephalic indices of 83 or higher. The hypsicephaly of this group is due more to the extreme height of the head than to the size of the antero-posterior diameter. The breadth-height index of 93.14 is very significant as indicating a head height unusually great in proportion to breadth.

The Bedawin forehead is very narrow, as is also the distance between the eyes measured from the inner palpebral margins. The length of the face from the hairline to menton is of moderate dimension with a mean of 182.16 millimeters. The nasion-menton face height is not very great, but the upper face height of these Bedawins is of considerable magnitude. The latter dimension is indicative of the fact that the length of the face is principally a function of the nasion-prosthion length and that the height of the lower jaw is notably small. In face breadth the Bedawins are markedly narrow with a mean of 135.30 millimeters. This gives this group a leptoprosopic face with respect to the total facial proportions, and a decidedly leptene face as regards the upper facial area. The mean cephalo-facial index of 93.65 is rather high, considering the narrow facial breadth of the group. The minimum frontal diameter expressed as a percentage of the bizygomatic diameter, yielding a mean zygo-frontal index of 76.66, indicates a narrow forehead relative to the breadth of the face.

The Bedawin nose is long but not excessively so. In breadth, however, the nose reaches considerable magnitude with a mean of 36.41 millimeters. Thus the Bedawin possesses a nose which is proportionately medium long and broad and borders on mesorhiny. And finally, the Bedawin males lack outstanding characteristics with respect to breadth of mouth and thickness of lips.

Table 3 contains the number, range and means for the measurements and indices of the Bedawin females, as well as a percentage tabulation of the female means in terms of those of the males. Owing to the small size of the series it was not deemed advisable to calculate constants of variability and probable errors. A cur-

sory glance at these figures will show that on the whole the females present the general characteristics and proportions of the male Bedawins. There are perhaps merely one or two points worthy of mention. The first concerns itself with the unusually

TABLE 3. BEDAWIN FEMALES
MEASUREMENTS, INDICES AND OBSERVATIONS

MEASUREMENTS	No.	Range	Mean	Female Mean as a Percentage of Male Mean
Age.....	14	20- 59	36.30	..
Stature.....	14	143-166	152.13	91.2
Head length.....	14	164-196	183.00	96.8
Head breadth.....	14	129-149	139.42	96.5
Head height.....	12	110-141	130.18	96.8
Minimum frontal diameter...	14	93-108	101.34	98.0
Inter-ocular diameter.....	14	25- 36	30.71	97.8
Bizygomatic diameter.....	14	115-129	124.50	92.0
Physiognomic face height....	6	151-178	165.82	91.0
Total face height.....	14	95-124	109.85	91.8
Upper face height.....	14	60- 84	70.20	94.8
Nose height.....	14	40- 59	47.76	90.6
Nose breadth.....	14	28- 42	34.13	93.7
Mouth breadth.....	11	44- 57	50.32	95.5
Lip thickness.....	11	6- 21	13.40	90.9
Ear length, right.....	5	56- 67	61.80	97.5
INDICES				
Cephalic index.....	14	68- 82	76.08	99.7
Length-height index.....	12	66- 77	70.70	99.4
Breadth-height index.....	12	82- 99	92.00	98.8
Fronto-parietal index.....	14	60- 80	71.29	99.6
Cephalo-facial index.....	14	85- 96	89.21	95.3
Zygo-frontal index.....	14	76- 87	81.50	106.3
Total facial index.....	14	70-104	87.00	98.2
Upper facial index.....	14	46- 63	55.79	101.9
Nasal index.....	14	60- 87	70.34	101.3
OBSERVATIONS				
Eye Color	No.			%
Dark brown.....	3			21.43
Brown.....	10			71.43
Hazel.....	1			7.14
Totals.....	14			100.00

small bizygomatic mean diameter of 124.50, a mean which is only 92.0 per cent of the size of the corresponding male mean. The other is the comparatively high mean zygo-frontal index of 81.50 compared to the mean of the males which is considerably lower and has a value of 76.66. The higher mean of the females is the consequence of their extremely narrow bizygomatic diameters

rather than the result of any particular function of the forehead breadth.

From this analysis of the physical characteristics of the Bedawins the racial provenience of the group becomes perfectly clear. What we are dealing with here is a people of a comparatively high degree of homogeneity and predominantly of Mediterranean-Arab stock. There is no implication, however, that small amounts

TABLE 4. BEDAWIN MALES BY EYE COLOR

MEASUREMENTS	Dark Brown 20	Brown 81	Mixed Light 12
Age.....	29.35	40.60	38.80
Stature.....	164.10	166.92	168.00
Head length.....	187.80	189.36	188.49
Head breadth.....	144.55	144.58	144.01
Head height.....	133.70	134.70	134.18
Minimum frontal diameter.....	103.30	103.54	103.18
Inter-ocular diameter.....	31.55	31.34	31.49
Physiognomic face height.....	180.50	182.34	184.94
Bizygomatic diameter.....	136.25	135.10	135.35
Total face height.....	119.00	117.00	120.35
Upper face height.....	73.25	74.05	74.90
Nose height.....	52.30	54.30	52.50
Nose breadth.....	35.90	36.47	36.74
Mouth breadth.....	52.38	53.06	52.32
Lip thickness.....	14.88	14.88	14.30
Ear length, right.....	60.99	65.22	64.20
INDICES			
Cephalic index.....	76.95	76.26	75.99
Length-height index.....	71.15	71.12	71.24
Breadth-height index.....	92.75	93.14	93.50
Fronto-parietal index.....	71.05	71.71	71.26
Cephalo-facial index.....	93.95	93.47	94.25
Zygo-frontal index.....	76.10	76.82	75.98
Total facial index.....	87.75	88.85	89.50
Upper facial index.....	53.45	54.92	53.00
Nasal index.....	70.30	69.34	69.82

of admixture of other racial strains are lacking. Table 4 is presented with the hope that a sorting on the basis of eye color may reveal suggestions of foreign elements. In this table we have the means for the measurements and indices of dark brown-eyed, brown-eyed and mixed light-eyed Bedawin males. Out of the total of 113 individuals, 20 fall into the dark brown-eyed classification, 81 into the brown-eyed group and only 12 have mixed light eyes. If we compare the mixed light-eyed group with the dark brown-eyed class we find that the former are considerably taller in stature (by almost 4 centimeters); greater in head length; somewhat

narrower in head breadth; possibly higher in head height; narrower in forehead breadth; narrower in face breadth; greater in physiognomic face height, total face height, upper face height and nose height; broader in the nose; thinner in the lips; and considerably longer in the ears. Indicially the mixed light-eyed class is more dolichocephalic, more acrocephalic, has a higher cephalofacial index, is considerably more leptoprosopic, somewhat less leptene and more leptorrhine. The brown-eyed group is intermediate to the other two eye color classes in stature, physiognomic face height, upper face height, nose breadth, cephalic index, breadth-height index and total facial index. Although it is a risky task to make generalizations based on means of a very small group containing only 12 individuals, in this particular instance the mixed light-eyed element shows such an overwhelming complex of deviations indicative of a clear-cut racial complex that this writer feels perfectly safe in attributing the characteristics of the group to the presence of a Nordic strain. The size of the total Bedawin series, as well as the absence of much detailed data of a morphological character, makes it impossible to detect other racial elements. Whatever they are they must perforce be of a very minor nature. In summary this Bedawin group can be said to be of predominantly pure Mediterranean-Arab stock, plus a small element of Nordic admixture, and with a trace of Iranian Plateau blood.¹

In Table 5 our Bedawin series is compared with a number of groups with whom it is thought racial association may be demon-

¹ The term "Iranian Plateau" refers to a specific race type which has been identified very recently by Dr. Henry Field of the Field Museum of Chicago. In analyzing a very extensive series of anthropometric measurements and observations gathered in Iran and Iraq, Field found that he was able to isolate a very distinctive brunet White race presenting the following characters: black or dark brown wavy hair, brown eyes, very abundant beard and body hair, moderate to short stature, long and narrow heads, long and narrow faces with prominent bony structures and an extreme degree of nasality. It is this nasality which is the outstanding feature of the race. The nose is always very high and very prominent. The profile is sometimes straight but is almost always very strongly convex or concavo-convex. The tip of the nose is depressed and slopes downward and is of moderate thickness with strong recurvation of the alae.

The importance of this discovery cannot be overestimated. Heretofore, this dominant nasality has been referred to as an "Armenoid" feature and was used as an identifying character for the so-called "Armenoid race." Owing to Dr. Field's brilliant analysis of his Iran material, however, this extreme nasality is not to be ultimately referable to the round-headed Armenoids but to the long-headed Iranians.

For full details as to the derivation and source material for Dr. Field's "Iranian Plateau" race the reader is referred to his monograph entitled "Contributions to the Anthropology of Iran" (1939).

It is interesting to note that confirmation of Dr. Field's point of view is contained in a very large and comprehensive anthropometric study of more than a thousand Armenians by Dr. Byron O. Hughes of the University of Michigan, "The Physical Anthropology of Native Born Armenians," doctor's thesis submitted to the Division of Anthropology of Harvard University in 1938 and as yet unpublished. In this work Hughes finds that the Armenoids are not a primary subrace within the White division of mankind, but are a composite and secondary subrace derived from a mixture of Alpine and Iranian Plateau elements.

strated. All of the groups, with the exception of the Riffian Arabs, live in approximately the same general area in the Near East.¹

The fundamental differences between our Bedawins and the Moslems seem to be in the possession by the former of shorter statures, longer and narrower heads, distinctly lower cranial vaults, narrower foreheads, narrower faces, and somewhat shorter

TABLE 5. COMPARISON BETWEEN BEDAWIN MALES AND OTHER NEAR EASTERN GROUPS

	Bedawins (This Study) 115	Moslems (This Study) 258	Turkomans (This Study) 19	Akeydat (Shanklin) ¹ 120	Maualy (Shanklin) ¹ 176	Rwala (Shanklin) ² 270	Mesopotamian Arabs (Ehrlich) ³ 33	Riffian Arabs (Coon) ⁴ 93
Stature.....	166.86	168.00	169.74	168.50	170.12	161.9	171.28	167.98
Head length.....	189.09	184.98	191.04	191.35	190.42	191	190.44	194.33
Head breadth.....	144.46	147.28	143.89	146.14	147.06	144	146.21	145.13
Head height.....	134.50	136.26	136.54	122.76	125.36	..	..	127.66
Min. frontal diam....	103.42	104.86	104.62	117.64	118.50	104	104.15	104.54
Zygomatic diam....	135.30	137.25	135.70	134.58	135.91	130	137.73	135.14
Total face height....	119.70	120.65	120.40	123.32	124.04	119	128.67	123.37
Upper face height....	74.05	74.60	75.25	71.82	73.00	70	79.09	72.12
Nose height.....	52.70	52.98	54.14	54.66	55.42	55	58.52	53.86
Nose breadth.....	36.41	36.71	35.78	36.28	36.82	35	35.39	35.47
Cephalic index.....	76.29	79.74	75.33	76.39	77.28	75.0	76.25	74.64
Length-height index..	71.09	73.79	71.15	64.15 ⁵	65.83 ⁵	..	..	65.63
Breadth-height index	93.14	92.45	95.78	84.00 ⁵	85.24 ⁵	..	..	88.02
Fronto-parietal index	71.56	71.17	72.37	80.50 ⁵	80.58 ⁵	72.72 ⁵	71.21	72.00
Cephalo-facial index..	93.65	93.20	95.15	92.09 ⁵	93.00 ⁵	90.28 ⁵	94.21	93.06
Zygo-frontal index...	76.66	76.62	76.22	87.41 ⁵	87.19 ⁵	80.00 ⁵	74.88	77.36 ⁵
Total facial index...	88.60	88.00	87.80	91.90	92.34	91.7	93.36	91.33
Upper facial index....	54.74	54.41	55.37	53.4	53.8	53.9	57.42	53.36
Nasal index.....	69.46	69.46	66.14	65.95	66.26	63.7	60.73	66.29

¹ Shanklin, 1936.

² Shanklin, 1935.

³ Ehrlich, unpublished measurements in the Peabody Museum.

⁴ Coon, 1931.

⁵ Index of means.

total facial and upper facial diameters. There is virtually no difference in the nasal dimensions and in respect to relative proportions of these dimensions the two groups are identical. Both series are basically Mediterranean-Arab in racial origin, but their disparity lies in the fact that the Moslems have a strong element of Alpine and Iranian Plateau blood (Armenoid) which in the Bedawins is present only to the very slightest degree.

The Bedawins when compared with the Turkomans are shorter in stature, somewhat more brachycephalic but not very much so (.96 index units), distinctly lower in the cranial vault, and a little narrower in the forehead but approximately the same dimension

¹ Coon, 1931.

in the width of the face. They are also a little shorter in the total and upper facial diameters, shorter in nose height and somewhat greater in the width of the nose across the alae. The Bedawins have somewhat lower length-height, breadth-height, fronto-parietal and cephalo-facial indices, but are a little higher in the total facial index and considerably higher in the nasal index. These differences are in the main not very great and it appears that there is a strong racial affinity between the Bedawins and the Turkomans. Where they do differ is in the possession by the latter of a little stronger element of Iranian Plateau stock. It must be remembered, however, that even in the Turkomans the Iranian Plateau strain does not reach strong proportions.

Differences in technique of measurement make it very difficult to compare our Bedawin series with Shanklin's Akeydat, Maualy¹ and Rwala² Bedawins. The principal disparities occur in head height, total and upper face height, nose height and minimum frontal diameter. Shanklin's head height means appear to be too low, while Huxley's measurements for this diameter may possibly be somewhat too high. In the case of the minimum frontal diameter Shanklin's means seem to be excessive and are probably due to an error common among observers of allowing the calipers to slip off the frontal crests posteriorly onto the temporal muscle area. It has already been pointed out that our total face height is probably a little too short owing to faulty location of the nasion point which Huxley consistently underestimated. Our upper face height diameter may be a millimeter or two on the long side and the nasal height is probably too short.

In spite of all these disagreements in technique certain general indications appear from the data. Our Bedawins are shorter in stature than the Akeydat and have shorter head lengths but also narrower head widths. The cephalic indices for the two groups, however, are essentially the same. The Bedawin face is somewhat broader and, taking all differences in technique into consideration, it may very well be that the Bedawins have somewhat longer total facial and upper facial dimensions, as well as a longer nasal height. The two groups are virtually identical in nose breadth. None of the differences mentioned above are very large and it would appear to be safe to conclude that the Bedawins of this study and Shanklin's Akeydat are closely related in physical char-

¹ Shanklin, 1936.

² Shanklin, 1935.

acteristics. Both groups are racially predominantly of Mediterranean stock. Where they differ is in the possession by the Akeydat of more Nordic and mixed Nordic strains than is to be found in the Bedawins. This is to be seen in the much higher proportion of mixed light-eyed individuals in the Akeydat series.

Shanklin's Maualy are taller than our Bedawins and have longer heads and broader skull vaults. In the cephalic index they are only slightly higher than the Bedawins. After estimating technique differences it is highly probable that the two groups are relatively similar in facial breadth, facial length and in nasal dimensions. Again we may conclude that our Bedawins and Maualy Bedawins are closely related and that their principal difference is in the quantity of Nordic admixture in the two series. The Maualy have a stronger Nordic strain than the Bedawins of this study as evidenced by their greater stature, greater cranial dimensions and a greater proportion of individuals with mixed light eye colors.

Our Bedawin series differs from Ehrich's Mesopotamian Arabs in many respects.¹ The Mesopotamian Arabs are taller in stature and have greater cranial length and breadth diameters. They do agree, however, in the value of the cephalic index. The Arabs are, moreover, broader in the face and longer in the total facial height, upper face height and nose height diameters. It may be possible that the great size of the length dimensions in the Arab face is a result of the personal equation of the observer in the location of the nasion point. All in all, our Bedawins and Ehrich's Mesopotamian Arabs are not very distant racially. They both are predominantly Mediterranean, with the latter showing a greater proportion of mixed Nordic blood.

After close examination of the comparable measurements between the Riffian Arabs and our Bedawins, it would appear that on the whole the two groups are distinctly related. They are both predominantly Mediterranean, but the Riffian Arabs have more Nordic admixture while the Bedawins have more of the Iranian Plateau-Armenoid strains.²

¹ Ehrich, unpublished measurements in the Peabody Museum.

² In order that the reader may avoid any confusion with respect to varying terminology, the following remarks apply. Wherever the term "Iranian Plateau" occurs alone there is reference to the long-headed, beak-nose race type described in a previous note. The term "Armenoid" is used to refer to the firm fusion of Alpine and Iranian Plateau strains as described by Hughes. In some instances I have utilized the phrases "Iranian Plateau-Armenoid" and "Iranian Plateau and Armenoid." The addition of the words "Iranian Plateau" is simply for the purpose of reminding the reader of the presence in the combination of this element.



THE MOSLEMS OF THE NEAR EAST

The Moslem male series includes 258 individuals with a mean age of 37.70 years. In pigmentation this group is much more variable than the Bedawins. Although both groups possess approximately the same proportion of individuals with dark brown eyes, the Moslems show a smaller percentage of brown eyes and a much larger proportion of mixed light eyes. The actual figures for mixed light-eyed individuals are 27.50 per cent for the Moslems and 10.62 per cent for the Bedawins. In hair color the same condition with respect to pigmentation differences holds true. The Moslem group has a much smaller proportion of individuals with dark brown and brown hair. It is worthy of note that although the mean ages of both the Moslem and Bedawin series are almost identical, the former shows a higher proportion of individuals with head hair colors recorded as gray or white. Skin color is also lighter among the Moslems (for exposed parts) with light brown and very light brown colors found in about 40 per cent of the group, and yellowish white, pale white and ruddy white comprising almost half of the total series.

In stature the Moslems are somewhat taller than the Bedawins with a mean of 168.00 centimeters. Thus this group may be said to be of moderate stature with a distinct inclination towards the tall side. Head length among the Moslems is short and the breadth of the cranial vault is quite narrow, albeit broader than that of the Bedawins. The mean cephalic index of 79.47 for the Moslems falls into the middle of the mesocephalic classification. The height of the Moslem head is very great and accounts for the hypsiccephalic proportions of the vault in spite of the shortness of the longitudinal diameter. The mean breadth-height index of 92.45 is markedly acrocephalic.

The Moslems are narrow in the width of the forehead and in the distance between the internal margins of the eyes. In these two dimensions, nevertheless, they somewhat exceed the Bedawins. This same superiority in lateral head dimensions may also be seen in the width of the face, since the Moslems have a mean maximum bizygomatic diameter of 137.25 millimeters. Physiognomic face height is greater among the Bedawins than the Mos-

lems, which indicates greater distance from nasion to the margin of the hairline. This is seemingly in contradistinction to the above where it was noted that the Moslems possessed a higher cranial vault than the Bedawins. This cranial picture, however, is in reality quite clear. What we have among the Bedawins is a well-rounded forehead of considerable height which soon levels off in the bregma region; in the Moslems the forehead is lower and more sloping, and the cranial vault continues to rise to a point further back towards the occiput. The Moslem antero-posterior contour of the cranial vault then has a tendency to incline in the direction of the characteristic Armenoid "sugar-loafed" outline.

Although the Moslems are shorter in the length of the head than the Bedawins, the former exceed the latter in the total length of the face as well as in the upper face height. Again we find the great disproportion between the upper facial length and height of the lower jaw. The relationship of breadth of face to its total length is 88 per cent which may be classified as leptoprosopic on the border of mesoprosopism. The nose is a little longer and a little broader than among the Bedawins, and the nasal index may be said to be leptorrhine on the border of mesorrhiny. The Moslem mouths are wider than are those of the Bedawins, but the lips are distinctly thinner. There is no significant difference between the two groups in ear length.

If we rapidly summarize the differences between the Moslems and the Bedawins we find that the former are taller in stature, more brachycephalic, higher in the cranial vault, lower and more sloping in the forehead and broader in the forehead and in the distance between the eyes. The antero-posterior contour of the Moslem cranial vault shows a more posterior position of the vertex; the face is broader and longer; the nose is longer and somewhat wider; the mouth has a greater width dimension and the pigmentation is a good deal lighter. If we were in the possession of the nasal profile and nasal height data we could clinch the portrait. In the mind of this writer, however, the direction of these differences presents a picture consistent with what one would expect if the Bedawins were mixed with a fairly strong strain of Armenoid, or what is more properly called by Dr. Henry Field the Iranian Plateau type. It is, therefore, not difficult to postulate that if the necessary nasal data had been recorded, the Moslems would

TABLE 6. MOSLEM MALES

MEASUREMENTS, INDICES AND OBSERVATIONS

MEASUREMENTS	No.	Range	Mean	S.D.	C.V.
Age.....	255	18-74	37.70±0.64	15.10±0.45	40.05±1.20
Stature.....	240	152-190	168.00±0.24	5.55±0.17	3.30±0.10
Head length.....	258	164-205	184.98±0.33	7.86±0.23	4.25±0.13
Head breadth.....	250	132-164	147.28±0.24	5.61±0.17	3.81±0.11
Head height.....	244	118-157	136.26±0.29	6.72±0.21	4.93±0.15
Min. frontal diam....	258	89-120	104.86±0.20	4.72±0.14	4.50±0.13
Inter-ocular diam....	258	25-54	31.94±0.13	3.18±0.09	9.96±0.30
Bizygomatic diam....	258	115-154	137.25±0.24	5.80±0.17	4.23±0.13
Physiognomic face ht.	104	151-214	181.34±0.64	9.72±0.45	5.36±0.25
Total face height....	258	100-144	120.65±0.30	7.10±0.21	5.88±0.17
Upper face height....	258	60-89	74.60±0.21	5.05±0.15	6.77±0.20
Nose height.....	258	32-67	52.98±0.18	4.40±0.13	8.30±0.25
Nose breadth.....	258	28-45	36.71±0.12	2.82±0.08	7.68±0.23
Mouth breadth.....	155	42-63	52.86±0.18	3.30±0.30	6.24±0.24
Lip thickness.....	155	4-23	13.90±0.18	3.26±0.12	23.45±0.90
Ear length, right....	136	47-82	63.30±0.30	5.22±0.21	8.25±0.34
Hand squeeze, right..	242	17-82	41.07±0.36	8.22±0.25	20.01±0.61
Hand squeeze, left...	243	17-70	38.79±0.35	8.13±0.25	20.96±0.64

INDICES

Cephalic Index.....	258	71-94	79.74±0.19	4.56±0.14	5.72±0.17
Length-height index..	244	61-90	73.79±0.20	4.71±0.14	6.38±0.19
Breadth-height index	244	79-105	92.45±0.20	4.53±0.14	4.90±0.15
Fronto-parietal index	258	63-83	71.17±0.14	3.30±0.10	4.64±0.14
Cephalo-facial index..	258	85-102	93.20±0.14	3.45±0.10	3.70±0.11
Zygo-frontal index...	258	68-87	76.62±0.14	3.40±0.10	4.44±0.13
Total facial index....	258	75-104	88.00±0.23	5.45±0.16	6.19±0.18
Upper facial index....	258	43-66	54.41±0.15	3.66±0.11	6.73±0.20
Nasal index.....	258	52-107	69.46±0.32	7.64±0.23	11.00±0.33

OBSERVATIONS

Hair Color	No.	%	Skin Color (unexposed)	No.	%
Black.....	95	41.85	Dark red brown....	1	.53
Dark brown.....	88	38.77	Olive yellow.....	16	8.47
Brown.....	7	3.08	Yellowish white....	51	26.98
Gray.....	27	11.89	Pale white.....	41	21.69
White.....	10	4.41	Ruddy white.....	1	.53
			Light brown.....	68	35.98
			Very light brown...	11	5.82
Total.....	227	100.00			

Total..... 189 100.00

Eye Color

Eye Color	No.	%	Skin Color (exposed)	No.	%
Dark brown.....	44	17.53	Dark yellow brown..	1	.40
Brown.....	138	54.98	Copper colored....	40	16.06
Hazel.....	12	4.78	Olive yellow.....	51	20.48
Green.....	3	1.20	Yellowish white....	21	8.43
Olive.....	1	.40	Ruddy white.....	1	.40
Gray.....	30	11.95	Light brown.....	66	26.51
Light blue.....	2	.80	Very light brown...	69	27.71
Blue.....	21	8.37			
Total.....	251	100.01	Total.....	249	99.99

possess a higher nose than the Bedawins, a more convex nasal profile, more frequent presence of a nasion depression and a greater frequency of recurved alae. The fundamental difference between the Moslems and the Bedawins, then, would be the inclusion in the former of a much stronger admixture of Armenoid-Iranian Plateau stock.

Table 7 records the mean of the measurements and indices of

TABLE 7. MOSLEM MALES BY EYE COLOR

	Dark Brown 44	Brown 138	Mixed Light 69
MEASUREMENTS			
Age.....	32.45	38.60	40.00
Stature.....	167.49	168.03	168.33
Head length.....	186.90	184.86	184.56
Head breadth.....	147.25	147.31	146.50
Head height.....	136.06	136.14	136.70
Minimum frontal diameter.....	104.30	105.30	105.50
Inter-ocular diameter.....	31.40	32.42	31.52
Physiognomic face height.....	179.38	182.26	182.22
Bizygomatic diameter.....	134.75	137.70	138.00
Total face height.....	120.20	124.60	120.60
Upper face height.....	73.95	74.60	74.95
Nose height.....	53.06	53.02	52.82
Nose breadth.....	35.90	36.74	37.22
Mouth breadth.....	52.70	53.36	52.28
Lip thickness.....	15.84	14.08	13.68
Ear length, right.....	62.28	68.79	64.17
INDICES			
Cephalic index.....	79.08	79.77	79.86
Length-height index.....	72.68	73.85	74.27
Breadth-height index.....	92.15	92.30	93.14
Fronto-parietal index.....	71.08	71.32	71.17
Cephalo-facial index.....	91.85	93.32	94.04
Zygo-frontal index.....	77.58	76.54	76.30
Facial index.....	89.40	87.75	87.35
Upper facial index.....	54.77	54.35	54.29
Nasal index.....	68.30	69.50	70.38

the Moslems broken down into eye color groups. The brown-eyed category is by far the largest, including more than one-half of the entire series (138); the mixed light-eyed class is the next largest with 69 individuals or about 28 per cent of the series; and in contrast to the Bedawins the dark brown-eyed category is the smallest with 44 individuals or 17 per cent of the series.

If we examine the dark brown-eyed class first we find that in contrast to the other two eye pigment groups, it is the youngest in mean age, the shortest in stature, the longest in head length, intermediate in head breadth, the lowest in head height, the nar-

rowest in minimum frontal diameter and inter-ocular width, the shortest in physiognomic face height, by far the smallest in the width of the face, the shortest in total face height and upper face height, the narrowest in the nose, the thickest in the lips, the lowest in mean cephalic index, the lowest in length-height and breadth-height indices, the narrowest in the forehead relative to the breadth of the head, the narrowest in the face relative to the width of the cranial vault, the highest in zygo-frontal index, the most leptoprosopic, leptene and leptorrhine. The dark brown-eyed group, then, seems to typify most strongly the Mediterranean-Arab element in the Moslem population.

The mixed light-eyed category is the tallest of all the groups, the shortest in length of head, the narrowest in head breadth, the highest in cranial vault elevation, the broadest in forehead width as well as face width, the greatest in upper face height, the shortest in nose height, the broadest in nasal width, the narrowest in mouth breadth and in lip thickness. Indicially, the mixed light-eyed class is the most brachycephalic, the highest in length-height and breadth-height indices, the highest in cephalo-facial index, the lowest in breadth of forehead relative to the width of the face, the least leptoprosopic, leptene and leptorrhine. The evidence is admitted to be somewhat confusing, but it appears that the mixed light-eyed element suggests the presence of a mixed Nordic-Alpine strain with the Alpine stock considerably more predominant than the Nordic. The Alpinoid characters are particularly located in the nose, in the shape of the head and in the breadth of the face, while the Nordic features are represented in the length of the face, light pigment of the eye, the thinness of the lips and the narrower width of the mouth.

The brown-eyed class is particularly outstanding in the width of the head, in the greatest inter-ocular diameter, the longest physiognomic face height, by far the longest total face height, the greatest in mouth breadth and in the length of the ear. This class is also highest in the fronto-parietal index. In all other characters it is intermediate to the dark brown and mixed light-eyed groups. In the latter instances the brown-eyed leans more frequently towards the mixed light-eyed class than to the dark brown category. It seems that what we are dealing with here is a predominance of an Armenoid-Iranian Plateau element. The affinities to the mixed

light-eyed characters are due to the possession of the Iranian Plateau stock of many Alpinoid characters.

In conclusion, the population represented by the Moslems of this study seems to be basically Arab-Mediterranean plus a moderately strong Armenoid-Iranian Plateau admixture with the addition of an adulterated Nordic-Alpine stock.

Table 8 presents a comparison of measurements and indices between the Moslems of this study and a number of other Near

TABLE 8. COMPARISON BETWEEN MOSLEM MALES AND OTHER NEAR EASTERN GROUPS

	Moslems	Bedawins	Akeydat	Maunly	Greek Orthodox	Maronites	Syrians
	(This Study)	(This Study)	(Shanklin) ¹	(Shanklin) ¹	(This Study)	(This Study)	(Seltzer) ²
NUMBER	258	115	120	176	91	31	251
Stature.....	168.00	166.86	168.50	170.12	167.16	167.61	167.19
Head length.....	184.98	189.09	191.35	190.42	182.70	179.13	183.06
Head breadth.....	147.28	144.46	146.14	147.06	151.60	151.96	155.47
Head height.....	136.26	134.50	122.76	125.36	135.10	139.10	127.77
Min. frontal diam...	104.86	103.42	117.64	118.50	104.82	105.46	106.82
Bizygomatic diam...	137.25	135.30	134.58	135.91	137.30	137.00	138.85
Total face height...	120.65	119.70	123.32	124.04	118.30	118.95	122.90
Upper face height...	74.60	75.05	71.82	73.00	74.65	73.95	72.80
Nose height.....	52.98	52.70	54.66	55.42	53.10	51.58	55.22
Nose breadth.....	36.71	36.41	36.28	36.82	35.36	36.74	34.76
Cephalic index.....	79.74	76.29	76.39	77.28	83.01	84.96	85.11
Length-height index.	73.79	71.09	64.15 ³	65.83 ³	74.21	77.90	69.92
Breadth-height index	92.45	93.14	84.00 ³	85.24 ³	89.39	91.79	82.43
Fronto-parietal index	71.17	71.56	80.50 ³	80.58 ³	69.43	69.61	68.80
Cephalo-facial index.	93.20	93.65	92.09 ³	93.00	90.56	89.87	89.57
Zygo-frontal index...	76.62	76.66	87.41 ³	87.19 ³	76.86	77.38	76.94
Total facial index...	88.00	88.60	91.90	92.34	86.65	87.30	88.58
Upper facial index...	54.41	54.74	53.40	53.80	54.32	54.44	52.61
Nasal index.....	69.46	69.46	65.95	66.26	67.10	71.82	63.26

¹ Shanklin, 1936.

² Seltzer, 1936.

³ Index of means.

Eastern groups. A close scrutiny of these data reveals the fact that none of the series tabulated show very close resemblances to the Moslems.¹ Perhaps their nearest in racial affiliation is the Bedawin group. And even the latter when contrasted measurement for measurement with the Moslems present several important differences. The principal disparities already referred to are the possession by the Moslems of greater statures, much shorter

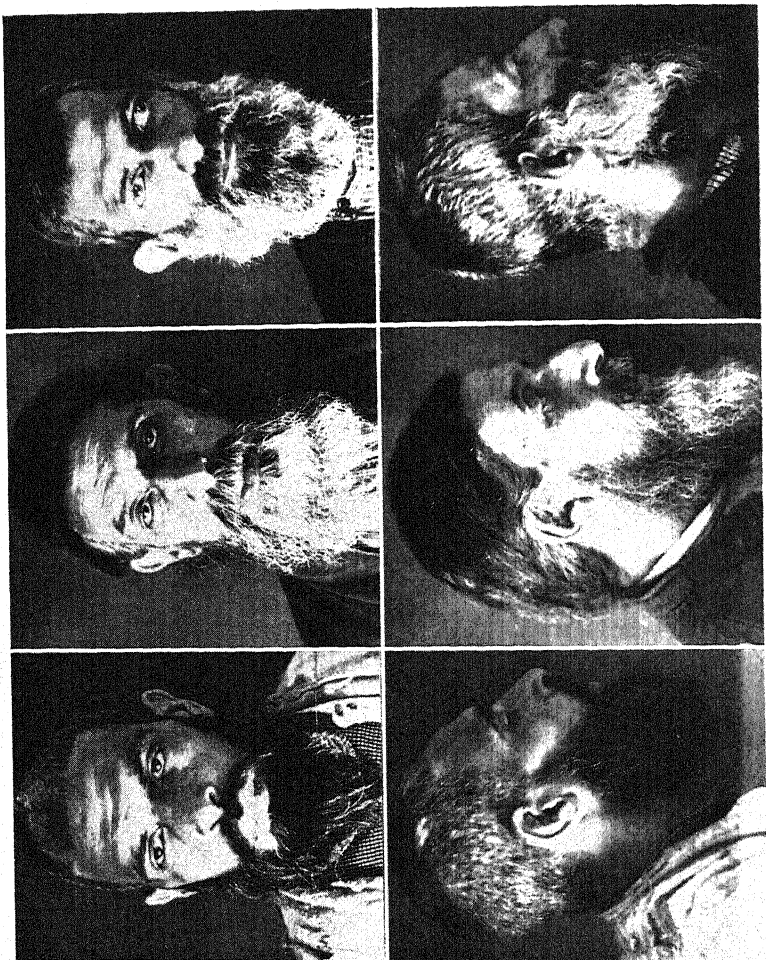
¹ This Moslem series seems to show very close resemblance with Shanklin's group of Mhardeh Syrians. See "The Journal of the Royal Anthropological Institute of Great Britain and Ireland," vol. LXVIII, pp. 379-414. London, 1938. Unfortunately this manuscript had already gone to proof after the appearance of Shanklin's excellent anthropometric study making it impossible to include this new material.

head lengths, considerably broader head breadths, higher cranial vaults, somewhat broader foreheads and faces, and slightly longer noses, total and upper facial heights. Although it is true that the main element in the Moslems as in the Bedawins is the Mediterranean-Arab stock, the former have a moderately strong Armenoid-Iranian Plateau strain which in the Bedawins is of very minor importance.

In the main, the differences between the Moslems and the Bedawins are accentuated when the former are compared with Shanklin's Akeydat and Maualy. Both of Shanklin's groups have more Mediterranean-Arab elements and less of the Armenoid-Iranian Plateau than is found in the Moslems.

Compared to the Greek Orthodox series the Moslems are possibly taller in stature, much more dolichocephalic, somewhat higher headed, similar in frontal and bizygomatic diameter, more leptoprosopic but less leptorrhine. Thus the Mediterranean-Arab element which is dominant in the Moslems becomes of secondary importance among the Greek Orthodox group. On the other hand the Armenoid-Iranian Plateau strain which is of secondary importance in the Moslems rises to primary significance in the Greek Orthodox group.

Both the Maronite and Syrian series differ from the Moslems in the possession of significantly greater proportions of Armenoid-Iranian Plateau strains.



THE SAMARITANS OF THE NEAR EAST

The Samaritans of Palestine are physically a most extraordinary group of people. They present a multitude of characters which stamp them as one of the most distinctive ethnic elements in the Near East. Our series consists of 38 adult males between the ages of 18 and 69. The average age of the series is 37.65 years. Most fortunately full face and profile view photographs are available for almost every individual in the group. Owing to their excellence we have taken the liberty of drawing quite heavily upon them for descriptive material. After examining and studying these photographs it was found that as many as 25 seemed to group themselves together in showing striking resemblances in cranial and facial features as well as in general expression. It is this group of 25 which presents the distinctive features of the Samaritans. These may be termed the "Ultra-Samaritans." The remaining 10 or 12 diverge quite markedly from the above subgroup and appear to be simply the general run of physical type so characteristic of the coastal Syrian. Accordingly the descriptive remarks to follow, based on the photographic material, will refer particularly to the features of the "Ultra-Samaritan" subgroup.

Skin color among the Samaritans is unusually light for a Near Eastern population, with every single individual classified for the unexposed parts as either pale white or yellowish white; the former color is almost three times as common as the latter. It is also significant to note that the tanning differential is exceedingly small, since none of the individuals display any brown or reddish brown skins on the exposed parts of the body. From the photographs it appears that the form of the head hair is either straight or of the low wave variety, at least in those cases where the hair is not clipped too short. Face hair is very abundant and widely distributed over the upper parts of the cheeks. There are, however, a few cases where the beard is extremely sparse and of the general Arab variety with slight development on lips and chin and spotty on the side of the face. There seems to be no middle ground as far as beard development is concerned, in as much as the face hair is either extremely abundant or extremely sparse. The eyebrows are on the whole very thick and heavy and concurrency is

CONTRIBUTIONS TO THE

TABLE 9. SAMARITAN MALES

MEASUREMENTS, INDICES AND OBSERVATIONS

MEASUREMENTS	No.	Range	Mean	S.D.	C.V.
Age.....	38	18- 69	37.65 \pm 1.71	15.65 \pm 1.21	41.57 \pm 3.22
Stature.....	38	161-184	172.26 \pm 0.75	6.81 \pm 0.53	3.95 \pm 0.31
Head length.....	38	170-202	188.28 \pm 0.88	8.04 \pm 0.62	4.27 \pm 0.33
Head breadth.....	38	135-158	146.17 \pm 0.56	5.13 \pm 0.40	3.51 \pm 0.27
Head height.....	38	130-161	140.22 \pm 0.73	6.68 \pm 0.52	4.76 \pm 0.37
Min. frontal diam.....	38	97-116	103.54 \pm 0.53	4.84 \pm 0.37	4.67 \pm 0.36
Inter-ocular diam.....	38	25- 36	29.87 \pm 0.24	2.19 \pm 0.17	7.33 \pm 0.57
Bizygomatic diam.....	38	120-149	132.15 \pm 0.63	5.80 \pm 0.45	4.39 \pm 0.34
Physiognomic face ht..	30	155-202	182.50 \pm 1.16	9.40 \pm 0.82	5.15 \pm 0.45
Total face height.....	38	105-144	123.95 \pm 0.71	6.45 \pm 0.50	5.20 \pm 0.40
Upper face height.....	38	70- 94	78.95 \pm 0.51	4.70 \pm 0.36	5.95 \pm 0.46
Nose height.....	38	44- 63	55.38 \pm 0.45	4.08 \pm 0.32	7.37 \pm 0.57
Nose breadth.....	38	28- 42	36.74 \pm 0.32	2.88 \pm 0.22	7.84 \pm 0.61
Mouth breadth.....	38	46- 59	51.40 \pm 0.31	2.86 \pm 0.22	5.56 \pm 0.43
Lip thickness.....	38	10- 29	17.24 \pm 0.35	3.18 \pm 0.25	18.45 \pm 1.43
Ear length, right.....	38	53- 76	64.98 \pm 0.49	4.47 \pm 0.35	6.88 \pm 0.53
Hand squeeze, right...	38	17- 64	32.91 \pm 1.11	10.11 \pm 0.78	30.72 \pm 2.38
Hand squeeze, left....	38	17- 58	30.63 \pm 0.94	8.61 \pm 0.67	28.11 \pm 2.17
INDICES					
Cephalic index.....	38	71- 88	77.91 \pm 0.42	3.81 \pm 0.29	4.89 \pm 0.38
Length-height index..	38	67- 81	74.39 \pm 0.34	3.09 \pm 0.24	4.15 \pm 0.32
Breadth-height index..	38	85-111	95.72 \pm 0.55	5.04 \pm 0.39	5.27 \pm 0.41
Fronto-parietal index..	38	66- 77	70.96 \pm 0.27	2.49 \pm 0.19	3.51 \pm 0.27
Cephalo-facial index..	38	82- 96	90.35 \pm 0.29	2.64 \pm 0.20	2.92 \pm 0.23
Zygo-frontal index....	38	72- 87	78.22 \pm 0.32	2.88 \pm 0.22	3.68 \pm 0.28
Total facial index.....	38	80-109	94.65 \pm 0.68	6.25 \pm 0.48	6.60 \pm 0.51
Upper facial index.....	38	52- 72	59.96 \pm 0.48	4.35 \pm 0.34	7.25 \pm 0.56
Nasal index.....	38	52- 83	66.54 \pm 0.83	7.60 \pm 0.59	11.42 \pm 0.88
OBSERVATIONS					
Hair Color	No.	%	Skin Color (unexposed)	No.	%
Blonde.....	1	2.63	Yellowish white....	9	23.68
Brown.....	6	15.79	Pale white.....	29	76.32
Dark brown.....	15	39.47			
Black.....	6	15.79	Total.....	38	100.00
Gray.....	4	10.53			
Gray and brown...	1	2.63			
Gray and dark br...	3	7.89			
Gray and black....	2	5.26			
Total.....	38	99.99			
Eye Color			Skin Color (exposed)		
Dark brown.....	11	28.95	Olive yellow.....	15	39.47
Brown.....	13	34.21	Yellowish white....	14	36.84
Hazel.....	3	7.89	Pale white.....	6	15.79
Gray.....	3	7.89	Ruddy white.....	2	5.26
Gray and brown...	1	2.63	Ruddy + yel. white.	1	2.63
Blue.....	7	18.42			
Total.....	38	99.99	Total.....	38	99.99

often visible. Pronouncedly heavy brow ridges are an almost characteristic feature of the Samaritans. Eye color among the Samaritans is quite heterogeneous. Mixed light eyes are found in 36.83 per cent of the males; about half of this number are classified as blue. Brown eyes comprise 34.21 per cent of the series and the dark brown variety only 28.95 per cent. Eyefolds are almost entirely lacking among the Samaritans with the exception of two or three cases of external epicanthic, or Nordic, folds of medium development. The height of the palpebral opening is in many instances quite pronounced, and there are a number of cases where the sclera is visible below the inferior border of the iris. Nasion depression is prevailingly small, and the root of the nose is very high indeed. The Samaritans possess very high and prominent nasal bridges, and the profiles range from pronouncedly convex to the straight type. Concave nasal profiles seem to be entirely lacking in this group. In breadth the root and the bridge of the nose are of moderate dimensions. The nasal tip is rather fleshy, but depressed nasal tips are not predominant although often present. Recurved alae are, however, a very common feature. The Samaritans have rather heavy lips which show a medium degree of eversion. The chin is characteristically extremely weak and lacking in frontal protrusion causing the profile to fall away very markedly below the mouth. Ears are on the whole very large and stand away quite strongly from the side of the head. All degrees of forehead slope may be seen in this series of Samaritans ranging from the extremely sloping variety to the high bulging type. The cranial vault is extraordinarily high and the "sugar-loaf" form or Armenoid type of cranial contour with the vertex towards the occiput is very common in this group.

If we turn to the metric and indicial characters we find that, according to Table 9, the Samaritans are rather tall in stature with a mean of 172.26 centimeters. The glabello-occipital length is moderate and the breadth across the parietals is not very great. The height of the cranial vault with a mean of 140.22 millimeters is truly a remarkable character. In relative proportions the cranial vault is on the border of mesocephaly and dolichocephaly, extremely hysicephalic and acrocephalic. Forehead breadth among the Samaritans is unusually narrow with a mean minimum frontal diameter of 103.54 mm. Facial breadth is also extremely small

both in absolute dimensions and in relative proportions, as evidenced by the low cephalo-facial index of 90.35 and the mean zygo-frontal index of 78.22.

The length of the face from the hairline to menton is very great, while the nasion-menton height mean of 123.95 is but of moderate size. The mean total facial index of 94.65 characterizes the Samaritans as one of the most leptoprosopic, if not perhaps the most leptoprosopic, group in the Near East. In consonance with this feature the upper facial proportions are most remarkably hyper-leptene. The nose is distinctly long and moderately broad giving a mean leptorrhine nasal index of 66.54.

Again it must be frankly stated by this writer that it appears to be quite possible that our observer may have erred in the location of the nasal point. From a close examination of the photographs, as well as from other considerations, it seems that face height and nose height measurements have been underestimated. Although the present figures give the Samaritans a leptorrhine nose and a leptoprosopic face, photographically they appear to show a hyper-leptorrhine nose and a hyper-leptoprosopic face.

The breadth of the mouth is not very great among the Samaritans, but the thickness of the lips is extremely marked with a mean of 17.24 millimeters. And finally, the length of the ear (64.98 mm.) is of more than moderate dimensions considering the mean age of the group.

It is quite obvious that the small size of the Samaritan series precludes the possibility of obtaining reliable analysis sortings for clues to the identification and linkage of the racial elements present. Accordingly the simple eye color sortings given in Table 10 can only be considered in the light of suggestions rather than in the form of definitive evidence. The light mixed eye color group consisting of 14 individuals seems to exhibit the shortest head length, the narrowest minimum frontal diameter, the longest face, the greatest nose height, the longest ear and the most leptorrhine nasal index. The dark brown-eyed group is possibly the shortest in stature, the most dolichocephalic, the most acrocephalic, the narrowest in facial breadth and the shortest in ear length. The brown-eyed class is the most brachycephalic, the greatest in forehead breadth, the greatest in facial breadth, the

shortest in face height and nose height, the least leptorrhine and the least leptoprosopic.

There is little doubt from the examination of the metric data as well as the photographs that the basic element in the Samaritans is that of the Iranian Plateau stock. This is evidenced in part by the extreme nasality, the extraordinary height of the cranial vault, the sugar-loafed contour of the head and by the great length of the face. From the above eye color sortings it seems to

TABLE 10. SAMARITAN MALES BY EYE COLOR

	Dark Brown 11	Brown 13	Light mixed 14
MEASUREMENTS			
Age.....	41.55	29.30	42.35
Stature.....	171.54	172.86	172.29
Head length.....	190.35	189.24	185.79
Head breadth.....	145.00	148.95	145.00
Head height.....	140.94	140.42	139.50
Minimum frontal diameter.....	103.58	106.50	100.78
Inter-ocular diameter.....	30.08	29.69	29.87
Bizygomatic diameter.....	131.10	133.15	132.00
Physiognomic face height.....	183.30	179.18	184.50
Total face height.....	123.80	121.60	126.30
Upper face height.....	80.20	77.40	79.50
Nose height.....	56.06	52.90	57.22
Nose breadth.....	37.46	37.07	35.87
Mouth breadth.....	52.50	51.58	50.78
Lip thickness.....	17.78	17.88	16.22
Ear length, right.....	63.50	64.38	66.42
INDICES			
Cephalic index.....	76.35	78.93	78.21
Length-height index.....	73.73	74.00	75.29
Breadth-height index.....	97.19	94.31	95.21
Fronto-parietal index.....	71.35	72.07	69.58
Cephalo-facial index.....	90.92	89.46	90.71
Zygo-frontal index.....	78.26	79.66	76.94
Total facial index.....	94.75	92.75	96.30
Upper facial index.....	61.19	58.07	60.71
Nasal index.....	66.70	69.18	63.22

be at any event suggestive that this element entered the group along with a Nordic strain accentuating its leptorrhiny and its leptoprosopy. The second racial element of importance is the so-called Atlanto-Mediterranean. The dark brown-eyed class perhaps shows this element in its greatest strength but even here it is intimately associated with Iranian Plateau characteristics. The third element, and of lesser significance, is the Alpine strain. This seems to be clearly linked with the brown-eyed class in its brachy-

TABLE 11. COMPARISON BETWEEN SAMARITAN MALES AND OTHER NEAR EASTERN GROUPS

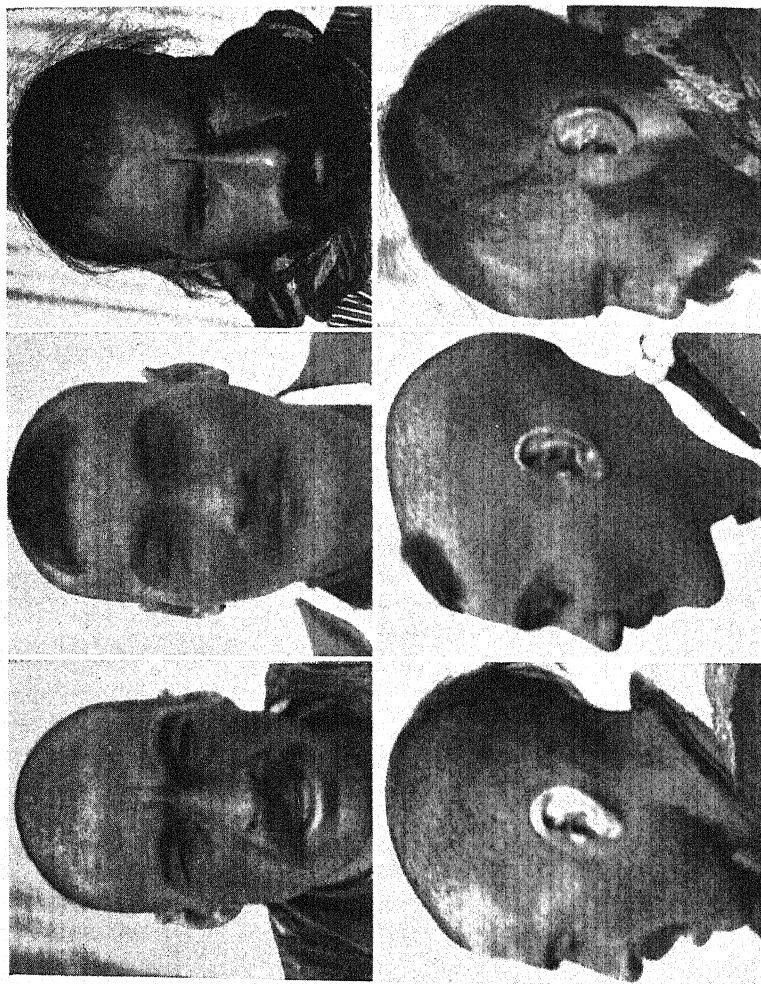
	Number	Samaritans (This Study)	Bedawins (This Study)	Akevidat (Shanklin) ¹	Manuly (Shanklin) ¹	Moslems (This Study)	Turkmenas (This Study)	Masinites (This Study)	Nusairiyah (This Study)	Druse (This Study)
Stature.....	172.26	172.26	166.86	168.50	170.12	168.00	169.74	167.61	169.68	167.55
Head length.....	188.28	188.28	189.09	191.35	190.42	189.48	191.04	179.13	176.16	178.89
Head breadth.....	146.17	146.17	144.46	146.14	147.06	147.28	143.89	151.96	152.56	151.72
Head height.....	140.22	140.22	134.50	122.76	125.36	136.26	136.54	139.10	138.84	138.90
Min. frontal diam.....	103.54	103.54	103.42	117.64	118.50	104.86	104.62	105.46	105.86	106.94
Bizygomatic diam.....	132.15	132.15	135.30	134.58	135.91	137.25	135.70	137.00	139.00	140.70
Total face height.....	123.95	123.95	119.70	123.32	124.04	120.65	120.40	118.95	124.00	120.35
Upper face height.....	78.95	78.95	74.05	71.82	73.00	74.60	75.25	73.95	76.00	73.65
Nose height.....	55.38	55.38	52.70	54.66	55.42	52.98	54.14	51.58	54.94	53.06
Nose breadth.....	36.74	36.74	36.41	36.28	36.82	36.71	35.78	36.74	35.84	36.77
Cephalic index.....	77.91	77.91	76.29	76.39	77.28	79.74	75.33	84.96	86.52	84.84
Length-height index.....	74.39	74.39	71.09	64.15 ²	65.85 ²	73.79	71.15	77.90	79.28	77.60
Breadth-height index.....	95.72	95.72	93.14	84.0 ²	85.24 ²	92.45	95.78	91.79	91.16	91.79
Fronto-parietal index.....	70.96	70.96	71.56	80.50 ²	80.58 ²	71.15	72.37	69.61	69.76	70.45
Cephalo-facial index.....	90.35	90.35	93.65	92.09 ²	93.0 ²	93.20	95.15	89.87	91.52	92.72
Zygo-frontal index.....	78.22	78.22	76.66	87.41 ²	87.19 ²	76.62	76.22	77.38	76.38	76.02
Total facial index.....	94.65	94.65	88.60	91.90	92.34	88.00	87.80	87.30	89.40	85.60
Upper facial index.....	59.96	59.96	54.74	53.4	53.8	54.41	55.37	54.44	54.68	52.61
Nasal index.....	66.54	66.54	69.46	65.95	66.26	69.46	66.14	71.82	64.86	70.54

¹ Shanklin, 1936.² Index of means.

cephaly, its greater lateral dimensions of head and face, in its tendency towards mesoprosopy and in its weaker leptorrhiny. Although this Alpine strain is present to some extent in the group which we earlier designated photographically as the "Ultra-Samaritans," it is undoubtedly most strongly represented in the small residual "non-Samaritan" group.

A close survey of the data in Table 11 shows that the Samaritans differ very markedly from the Maronites, Nusairiyeh and Druse series. These groups are hyperbrachycephalic in contrast to the Samaritans who present a low mesocephalic cranial vault. This brachycephaly is due in the Maronites and Druse to the very strong elements of Alpine as well as Armenoid-Iranian Plateau blood. The Alpine strain is particularly of very minor significance among the Samaritans.

There is also no close relationship between the Samaritans and the Bedawins, Akeydat, Maualy, Moslems and Turkomans. In the latter groups the dominant element in varying strength is the Mediterranean-Arab strain, while in the Samaritans the significant stock is the Iranian Plateau. The Samaritans do possess strong Mediterranean blood, but whereas in the afore-mentioned groups it is Arab-Mediterranean, in the Samaritans it is the Atlanto-Mediterranean.



TURKOMANS

THE TURKOMANS OF THE NEAR EAST

Our Turkoman male series contains only 19 individuals of adult age. Sufficient homogeneity of features, however, is present to enable us to describe and characterize the group with a fair degree of confidence. Of considerable assistance in this task are the photographs of 11 out of the 19 men of the series, which contain both profile and frontal views of the head and face. The form of the head hair is in part obscured by the practice of head shaving among these people, so that only small tufts of hair remain on the frontal or occipital aspects. Whatever evidence is available in the case of this feature seems to point to possession by the Turkomans of head hair which is straight in form with possibly the suggestion of a slight low wave in one or two of the individuals in the series. The color of the head hair is described as black in 68.42 per cent of the group and dark brown in the remaining 31.58 per cent. Mustaches are always present and well developed, but the amount of face hair varies from sparse to pronounced beard development. About three-fourths of the group possess unexposed skin colors containing a yellowish base classified as either olive yellow or yellowish white, while approximately 15 per cent have copper colored skins and the remaining 10 per cent are dark yellow brown in color. The eyebrows are moderately thick and concurrency seems to be present in quite a few cases. The color of the eyes is either dark brown or brown in almost 80 per cent of the individuals in this series; the rest are either hazel, gray or blue. External eyefolds are not uncommon but internal epicanthic folds seem to be entirely lacking. The nose in general lacks unusual characteristics and is in root and bridge merely of moderate dimensions. The wings of the nostrils are not particularly flaring and the nasal tip is not thick and heavy. The tip of the nose is directed upward in almost every instance and the lateral as well as the frontal visibility of the nostrils, is quite marked. It may be seen then that the characteristic Iranian Plateau-Armenoid nose is virtually absent.

Metrically the Turkomans are moderately tall in stature, have long heads and distinctly narrow head widths. The mean cephalic index of 75.33 places these people in the dolichocephalic class. The

TABLE 12. TURKOMAN MALES
MEASUREMENTS, INDICES AND OBSERVATIONS

MEASUREMENTS	No.	Range	Mean	S.D.	C.V.
Age.....	17	18- 59	32.90 \pm 1.73	10.60 \pm 1.23	32.22 \pm 3.73
Stature.....	19	164-187	169.74 \pm 0.78	5.07 \pm 0.55	2.99 \pm 0.33
Head length.....	19	185-202	191.04 \pm 0.75	4.86 \pm 0.53	2.54 \pm 0.23
Head breadth.....	19	135-155	143.89 \pm 0.80	5.16 \pm 0.56	3.59 \pm 0.39
Head height.....	19	122-153	136.54 \pm 1.02	6.60 \pm 0.72	4.83 \pm 0.53
Min. frontal diam.....	19	97-112	104.62 \pm 0.65	4.20 \pm 0.46	4.01 \pm 0.44
Inter-ocular diam.....	19	28- 36	32.48 \pm 0.27	1.74 \pm 0.19	5.36 \pm 0.59
Bizygomatic diam.....	19	125-144	135.70 \pm 0.78	5.05 \pm 0.55	3.72 \pm 0.41
Physiognomic face ht..	15	159-202	181.58 \pm 1.45	8.32 \pm 1.02	4.58 \pm 0.56
Total face height.....	19	110-134	120.40 \pm 0.84	5.40 \pm 0.59	4.48 \pm 0.49
Upper face height.....	19	65- 84	75.25 \pm 0.77	5.00 \pm 0.55	6.64 \pm 0.73
Nose height.....	19	44- 63	54.14 \pm 0.73	4.72 \pm 0.52	8.72 \pm 0.95
Nose breadth.....	19	31- 42	35.78 \pm 0.33	2.13 \pm 0.23	5.95 \pm 0.65
Mouth breadth.....	19	48- 59	52.72 \pm 0.40	2.58 \pm 0.28	4.89 \pm 0.54
Lip thickness.....	19	8- 19	13.02 \pm 0.41	2.66 \pm 0.29	20.43 \pm 2.24
Ear length, right.....	19	56- 73	64.74 \pm 0.65	4.17 \pm 0.46	6.44 \pm 0.70
Hand squeeze, right..	19	14- 49	36.00 \pm 1.37	8.88 \pm 0.97	24.67 \pm 2.70
Hand squeeze, left....	19	14- 49	34.41 \pm 1.14	7.38 \pm 0.81	21.45 \pm 2.35
INDICES					
Cephalic index.....	19	68- 82	75.33 \pm 0.58	3.75 \pm 0.41	4.98 \pm 0.54
Length-height index..	19	64- 81	71.15 \pm 0.59	3.84 \pm 0.42	5.40 \pm 0.59
Breadth-height index..	19	88-105	95.78 \pm 0.65	4.23 \pm 0.46	4.42 \pm 0.48
Fronto-parietal index..	19	66- 77	72.37 \pm 0.41	2.67 \pm 0.29	3.69 \pm 0.40
Cephalo-facial index..	19	88-102	95.15 \pm 0.49	3.15 \pm 0.34	3.31 \pm 0.36
Zygo-frontal index....	19	68- 83	76.22 \pm 0.54	3.48 \pm 0.38	4.57 \pm 0.50
Total facial index.....	19	80- 99	87.80 \pm 0.63	4.05 \pm 0.44	4.61 \pm 0.50
Upper facial index.....	19	46- 63	55.37 \pm 0.56	3.60 \pm 0.39	6.50 \pm 0.71
Nasal index.....	19	52- 75	66.14 \pm 0.84	5.40 \pm 0.59	8.16 \pm 0.89
OBSERVATIONS					
Hair Color		No.	%	Skin Color (unexposed)	
Dark brown.....	6	31.58		Dark yellow brown..	2 10.53
Black.....	13	68.42		Copper colored.....	3 15.79
				Olive yellow.....	9 47.37
Total.....	19	100.00		Yellowish white....	5 26.32
Eye Color		No.	%	Total.....	
Dark brown.....	4	21.05			19 100.01
Brown.....	11	57.89		Skin color (exposed)	
Hazel.....	1	5.26		Copper colored.....	5 27.78
Gray.....	2	10.53		Olive yellow.....	11 61.11
Blue.....	1	5.26		Ruddy white.....	2 11.11
Total.....	19	99.99		Total.....	18 100.00

height of the cranial vault is well developed, giving decidedly acrocephalic and hypsiccephalic proportions to the general form of the head. From the photographs it appears that the forehead is rather high and rounded and that the occipital region shows marked protrusion in many instances. In one or two individuals there is a characteristic Mongoloid fatty deposit on the cheeks.

The minimum frontal diameter is small and the face is quite narrow with a mean bizygomatic diameter of 135.70 millimeters. The length of the face is merely moderate in both total facial and physiognomic heights. The total facial index of 87.80 is on the border of leptoprosopism and mesoprosopism. The upper facial

TABLE 13. TURKOMAN FEMALES
MEASUREMENTS, INDICES AND OBSERVATIONS

MEASUREMENTS	No.	Range	Mean	Female Mean as a Percentage of Male Mean
Age.....	6	20- 64	44.50	..
Stature.....	6	140-157	152.49	89.8
Head length.....	6	170-187	180.00	94.2
Head breadth.....	6	129-146	135.01	93.8
Head height.....	6	118-137	124.82	91.4
Minimum frontal diameter...	6	93-104	99.82	95.4
Inter-ocular diameter.....	6	25- 36	31.01	95.5
Bizygomatic diameter.....	6	120-134	126.15	93.0
Physiognomic face height.....	6	163-182	168.50	92.8
Total face height.....	6	105-114	109.50	91.0
Upper face height.....	6	65- 74	70.35	93.5
Nose height.....	6	44- 55	49.50	91.4
Nose breadth.....	6	28- 36	32.51	90.9
Mouth breadth.....	6	48- 53	50.50	95.8
Lip thickness.....	6	8- 13	11.16	85.7
Ear length, right.....	6	53- 67	59.01	91.1
INDICES				
Cephalic index.....	6	71- 85	75.51	100.0
Length-height index.....	6	72- 76	74.33	104.5
Breadth-height index.....	6	85- 96	91.49	95.5
Fronto-parietal index.....	6	72- 77	74.50	102.9
Cephalo-facial index.....	6	88- 96	92.00	96.7
Zygo-frontal index.....	6	76- 83	78.82	103.4
Total facial index.....	6	80- 89	85.35	97.2
Upper facial index.....	6	52- 60	56.51	102.1
Nasal index.....	6	52- 71	64.82	98.0
OBSERVATIONS				
Eye Color	No.			
Dark brown.....	2			
Brown.....	4			
Totals.....	6			
			%	
			33.33	
			66.67	
			100.00	

length, however, is quite marked and the corresponding upper facial index is decidedly leptene. The nose is of moderate length as well as of moderate breadth. The mean nasal index of 66.14 is leptorrhine. The mouth is not unusually broad and the lips are medium in thickness and, according to the photographs, show no marked eversion.

The size of the female Turkoman series is too small to be of any

significance, since there are only 6 individuals in the group. The means of the measurements and indices, nevertheless, are presented in Table 13 for what they are worth. Surprisingly, however, in spite of the extreme smallness of the series, the females approximate the male Turkomans very closely in general characteristics. The females have almost the identical cephalic index as the males, are relatively shorter and lower in skull vault dimensions, broader in the forehead relative to the width of the face, and, although shorter and broader in total facial proportions, they are longer and narrower in the upper facial region.

With respect to the racial origin of our series of Turkomans much can be said with confidence. The predominantly dark pigmentation, the moderate stature, the dolichocephalic skull vault, the narrow forehead and face, the leptorrhine non-Armenoid nose, et cetera, are features which clearly point to a diagnosis of Mediterranean-Arab racial stock. There is also present in this group a very slight admixture of Armenoid-Iranian Plateau blood which is visible in the great height of the cranial vault, in the marked length of the upper face and in the occasional appearance of the typical Armenoid nose. In addition there is also a trace of some kind of mixed Nordic blood which may very possibly have come in along with the Armenoid-Iranian Plateau admixture. The possibility of a very slight amount of Mongoloid admixture must also be considered in the light of the appearance in a few instances of certain characteristic fatty deposits in the cheeks. The Turkomans then, are overwhelmingly Mediterranean-Arab in racial origin, with a slight admixture of Armenoid-Iranian Plateau, plus a trace of some mixed Nordic stock.

In comparative Table 14 it may be seen that the Turkomans show very close resemblances with several of the groups tabulated. Attention has already been called to the close affiliation between the Turkomans and the Bedawins. Their difference, it may be remembered, may be attributed to the possession by the Turkomans of a stronger Iranian Plateau strain than in the Bedawins. Similarly the Akeydat and Maualy are not so strong as the Turkomans in the Iranian Plateau elements.

Coon's Riffian Arabs¹ are very similar to the Turkomans in many features. Particular mention in this connection should be

¹ Coon, 1931.

made of the close agreement in minimum frontal diameter, bizygomatic diameter, total face height (when differences in technique are taken into account), nose breadth, cephalic index, fronto-parietal index and zygo-frontal index. This strong resemblance is, of course, due to their possession in common of a strong element of Mediterranean-Arab blood.

TABLE 14. COMPARISON BETWEEN TURKOMAN MALES AND OTHER NEAR EASTERN GROUPS

	Turkomans (This Study) ¹	Bedawins (This Study) ¹	Akeydat (Shanklin) ¹	Maunly (Shanklin) ¹	Rwala (Shanklin) ²	Mesopota- mian Arabs (Ehrich) ³	Riffian Arabs (Coon) ⁴
NUMBER	19	115	120	176	270	33	93
Stature.....	169.74	166.86	168.50	170.12	161.9	171.28	167.98
Head length.....	191.04	189.09	191.35	190.42	191	190.44	194.33
Head breadth.....	143.89	144.46	146.14	147.06	144	146.21	145.13
Head height.....	136.54	134.50	122.76	125.36	..	..	127.66
Min. frontal diam....	104.62	103.42	117.64	118.50	104	104.15	104.54
Bizygomatic diam....	135.70	135.30	134.58	135.91	130	137.73	135.14
Total face height....	120.40	119.70	123.32	124.04	119	128.67	123.37
Upper face height....	75.25	74.05	71.82	73.00	70	79.09	72.12
Nose height.....	54.14	52.70	54.66	55.42	55	58.52	53.86
Nose breadth.....	35.78	36.41	36.28	36.82	35	35.39	35.47
Cephalic index.....	75.33	76.29	76.39	77.28	75.0	76.25	74.64
Length-height index.	71.15	71.09	64.15 ⁵	65.83 ⁵	..	..	65.63
Breadth-height index	95.78	93.14	84.00 ⁵	85.24 ⁵	..	..	88.02
Fronto-parietal index	72.37	71.56	80.50 ⁵	80.58 ⁵	72.22 ⁵	71.21	72.00
Cephalo-facial index.	95.15	93.65	92.09 ⁵	93.00 ⁵	90.28 ⁵	94.21	93.06
Zygo-frontal index...	76.22	76.66	87.41 ⁵	87.19 ⁵	80.00 ⁵	74.88	77.36 ⁵
Total facial index...	87.80	88.60	91.90	92.34	91.7	93.36	91.33
Upper facial index...	55.37	54.74	53.4	53.8	53.9	57.42	53.36
Nasal index.....	66.14	69.46	65.95	66.26	63.7	60.73	66.29

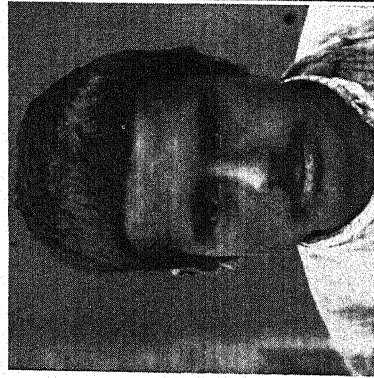
¹ Shanklin, 1936.

² Shanklin, 1935.

³ Ehrich, unpublished measurements in the Peabody Museum.

⁴ Coon, 1931.

⁵ Index of means.



THE MARONITES OF THE NEAR EAST

The Maronite male series consists of 31 individuals whose average age is 28.95 years. The color of the skin taken on the unexposed regions is moderately dark for this Near East group. The predominant colors are light brown (42.31 per cent) and copper colored (38.46). The remainder of the population shows very small proportions of dark yellow brown skin, reddish white and very light brown skins. There is a complete absence of light-colored head hair in this group and the greatest number of individuals have either dark brown or black hair on the scalp. The former color is slightly in excess of the latter. Eye color is quite variable. Brown eyes are most common and include about 42 per cent of the members of the series. The eye color of the rest of the group is about equally divided between the dark brown and the mixed-light categories.

In standing height the Maronites are only moderately tall with a mean of 167.61 centimeters. In head length they are distinctly short and in cranial width quite broad. The shape of the head is very round, or brachycephalic, with a mean length-breadth index of 84.96. The cranial vault is greatly elevated not only in absolute dimensions but also in relation to the length and breadth diameters. The Maronites are not excessively wide in the forehead or in the face, but these lateral dimensions are greater than in the Samaritans, Bedawins and Turkomans. The fronto-parietal index of 69.61 is rather low and indicates a narrow forehead in relation to the width of the face. The mean cephalo-facial index of 89.87 is the lowest of all our Near Eastern groups presented in this paper and may be said to be indicative of a relatively narrow face when considered in the light of the bi-parietal breadth.

The length of the face from the hairline to the chin is on the moderate side, with a mean of 181.18 millimeters. The nasion-menton face height, however, is distinctly on the short side (118.95 mm.). In total facial proportions the Maronites are mesoprosopic with strong leanings towards leptoprosopism. The nose is not very long and is moderate in width. The relative proportion of these dimensions, as indicated by the nasal index of 71.82, is indicative of a mesorrhine nasal condition. The breadth of the

CONTRIBUTIONS TO THE

TABLE 15. MARONITE MALES

MEASUREMENTS, INDICES AND OBSERVATIONS

ENTS	No.	Range	Mean	S.D.	C.V.
sex	31	18- 54	28.95 \pm 1.36	11.20 \pm 0.96	38.69 \pm 3.31
var.	31	155-184	167.61 \pm 0.78	6.45 \pm 0.55	3.85 \pm 0.33
ter.	31	164-193	179.13 \pm 0.61	5.01 \pm 0.43	2.80 \pm 0.24
lept.	31	141-164	151.96 \pm 0.66	5.46 \pm 0.47	3.59 \pm 0.31
	30	126-161	139.10 \pm 0.86	6.96 \pm 0.61	5.00 \pm 0.44
liam.	31	97-116	105.46 \pm 0.49	4.04 \pm 0.35	3.83 \pm 0.33
liam.	31	25- 36	30.83 \pm 0.32	2.61 \pm 0.22	8.47 \pm 0.73
liam.	31	125-154	137.00 \pm 0.65	5.40 \pm 0.46	3.94 \pm 0.34
face ht.	24	163-202	181.18 \pm 1.23	8.92 \pm 0.87	4.92 \pm 0.48
ght.	31	100-134	118.95 \pm 0.87	7.15 \pm 0.61	6.01 \pm 0.51
ight.	31	65- 89	73.95 \pm 0.59	4.85 \pm 0.42	6.56 \pm 0.56
	31	40- 63	51.58 \pm 0.49	4.04 \pm 0.35	7.83 \pm 0.67
	31	31- 42	36.74 \pm 0.34	2.82 \pm 0.24	7.68 \pm 0.66
h.	28	42- 57	49.58 \pm 0.45	3.52 \pm 0.32	7.10 \pm 0.64
	28	6- 19	13.28 \pm 0.40	3.10 \pm 0.28	23.34 \pm 2.10
ght.	25	56- 76	63.96 \pm 0.53	3.96 \pm 0.38	6.19 \pm 0.59
right.	31	28- 58	43.05 \pm 1.03	8.52 \pm 0.73	19.79 \pm 1.70
left.	31	22- 52	36.85 \pm 0.96	7.89 \pm 0.68	21.41 \pm 1.83
noir	31	74- 94	84.96 \pm 0.47	3.84 \pm 0.33	4.52 \pm 0.39
Irar	30	70- 90	77.90 \pm 0.53	4.32 \pm 0.38	5.55 \pm 0.48
elem	30	82-105	91.79 \pm 0.60	4.86 \pm 0.42	5.29 \pm 0.46
Med	31	60- 77	69.61 \pm 0.43	3.54 \pm 0.30	5.09 \pm 0.44
index.	31	79- 99	89.87 \pm 0.50	4.11 \pm 0.35	4.57 \pm 0.39
index.	31	68- 87	77.38 \pm 0.48	4.00 \pm 0.34	5.17 \pm 0.44
tic	31	70-109	87.30 \pm 0.83	6.85 \pm 0.59	7.85 \pm 0.67
F	31	46- 69	54.44 \pm 0.59	4.83 \pm 0.41	8.87 \pm 0.76
index.	31	52- 95	71.82 \pm 1.03	8.48 \pm 0.73	11.81 \pm 1.01
OBSERVATIONS					
	No.	%	Skin Color (unexposed)	No.	%
heig	13	41.94	Dark yellow brown.	2	7.69
heig	16	51.61	Copper colored....	10	38.46
enc	1	3.23	Reddish white....	1	3.85
the	1	3.23	Light brown.....	11	42.31
Mar	31	100.01	Very light brown...	2	7.69
the			Total.....	26	100.00
Mar	9	29.03	Skin Color (exposed)		
hear	13	41.94	Copper colored....	3	13.04
Mar	2	6.45	Dark yellow brown.	7	30.43
tion	5	16.13	Yellowish white....	1	4.35
and	2	6.45	Pale white.....	1	4.35
(diff			Ruddy white.....	1	4.35
ferer	31	100.00	Light brown.....	7	30.43
			Light red brown...	1	4.35
			Very light brown...	2	8.70
			Total.....	23	100.00

mouth is interestingly enough narrower than any of the other groups in this study with a mean diameter of 49.85 millimeters. The lips are on the thin side, while the ear lengths in this comparatively young group are excessively great.

TABLE 16. MARONITE FEMALES
MEASUREMENTS, INDICES AND OBSERVATIONS

MEASUREMENTS	No.	Range	Mean	S.D.	C.V.	Female Mean as a Percentage of Male Mean
Age.....	26	18- 69	32.75 ± 1.67	12.65 ± 1.18	38.78 ± 3.63	..
Stature.....	19	143-169	155.85 ± 0.93	6.03 ± 0.66	3.87 ± 0.42	93.0
Head length.....	26	164-190	176.43 ± 0.80	6.06 ± 0.57	3.43 ± 0.32	98.5
Head breadth.....	26	132-158	144.31 ± 0.83	6.30 ± 0.59	4.37 ± 0.41	95.0
Head height.....	23	122-145	132.90 ± 0.82	5.84 ± 0.58	4.39 ± 0.44	95.6
Min. frontal diam....	26	85-116	101.74 ± 0.75	5.64 ± 0.53	5.54 ± 0.52	96.5
Inter-ocular diam....	26	25- 36	30.86 ± 0.36	2.76 ± 0.26	8.94 ± 0.84	100.0
Stygomatic diam....	26	115-144	128.75 ± 0.78	5.90 ± 0.55	4.58 ± 0.43	94.0
Physiognomic face ht. 13	159-186	170.98 ± 1.48	7.92 ± 1.05	4.63 ± 0.61	94.4	
Total face height....	26	95-124	111.40 ± 0.89	6.75 ± 0.63	6.06 ± 0.57	93.7
Upper face height....	26	65- 79	70.45 ± 0.44	3.30 ± 0.31	4.68 ± 0.44	95.3
Nose height.....	26	40- 59	49.61 ± 0.43	3.24 ± 0.30	6.52 ± 0.61	96.3
Nose breadth.....	26	28- 39	32.93 ± 0.33	2.46 ± 0.23	7.47 ± 0.70	89.6
Mouth breadth.....	13	42- 53	49.26 ± 0.70	3.74 ± 0.49	7.59 ± 1.00	99.4
Lip thickness.....	13	8- 17	13.26 ± 0.48	2.56 ± 0.34	19.31 ± 2.55	99.8
Ear length, right....	13	50- 76	60.24 ± 1.04	5.58 ± 0.74	9.26 ± 1.22	94.2
INDICES						
Cephalic index.....	26	74- 91	81.81 ± 0.66	4.98 ± 0.47	6.09 ± 0.57	96.3
Length-height index. 23	67- 87	75.56 ± 0.58	4.14 ± 0.41	5.48 ± 0.54	97.0	
Breadth-height index 23	79-114	92.39 ± 0.96	6.81 ± 0.68	7.37 ± 0.73	100.7	
Fronto-parietal index 26	63- 77	70.36 ± 0.40	3.03 ± 0.28	4.31 ± 0.40	101.1	
Cephalo-facial index. 26	85- 99	89.57 ± 0.33	2.49 ± 0.23	2.78 ± 0.26	99.7	
Orbigo-frontal index... 26	68- 87	79.18 ± 0.44	3.36 ± 0.31	4.24 ± 0.40	102.3	
Total facial index.... 26	75-104	86.40 ± 0.89	6.70 ± 0.63	7.75 ± 0.72	99.0	
Upper facial index... 26	46- 66	55.07 ± 0.52	3.96 ± 0.37	7.19 ± 0.67	101.2	
Nasal index.....	26	56- 83	66.26 ± 0.76	5.76 ± 0.54	8.69 ± 0.81	92.3
OBSERVATIONS						
Eye Color		No.	%			
Dark brown.....		5	19.23			
Brown.....		14	53.85			
Gray.....		4	15.38			
Blue.....		2	7.69			
Light blue.....		1	3.85			
Total.....		26	100.00			

Table 16 contains the statistical data relative to the physical characteristics of 26 Maronite women who have an average age of 32.75 years. It may be seen that, with very few exceptions, this female series shows approximately the same features as the male group. They are moderate in stature, short headed, broad headed, high in the cranial vault, moderately broad in the forehead, mod-

erate in physiognomic face height, but short in total facial height, moderately short in the nose and long in the ears. They differ from the male series to a greater extent than is to be attributed to the sex factor in showing a considerably more dolichocephalic skull vault, in presenting approximately the same inter-ocular diameter, in the marked narrowness of the nose and in the more leptorrhine nasal index.

Owing to the small size of the male Maronite series we are unable to attempt an eye color sorting as an aid in the racial diagnosis of the various elements of the group. A very close examination of the anthropometric data, nevertheless, with the assistance of a few photographs allows certain deductions to be made with a reasonable degree of confidence. The most salient fact is that the most dominant racial element among the Maronites is the Alpine. This is visible in part in the brachycephaly of the group, in the width of the face, in the mesoprosopic facial proportions, in the tendency towards mesorrhiny and in the low frequency of Armenoid nasal appendages. On top of this basic Alpine is a strain of Iranian Plateau or perhaps a mixed Armenoid-Iranian Plateau element. And finally there is a suggestion of a small admixture of Mediterranean and some highly miscegenized Nordic or East Baltic blood.

From the data in Table 17 it may be seen that there is an extremely close relationship between the Maronites and the Druse group. In the following characteristics the two series are very close: stature, head length, head breadth, head height, upper face height, nose breadth, cephalic index, length-height index, breadth-height index and fronto-parietal index. They show small differences in minimum frontal diameter with the Maronites presenting the narrower mean, in bizygomatic diameter where again the Maronites possess the inferior measurement, in nose height with the Druse having the longer nose, in cephalo-facial index with the Maronites displaying narrower faces relative to the width of the head, in the more leptoprosopic and leptene facial indices of the Maronites, and in the somewhat more leptorrhine nasal proportions of the Druse. Of these features only bizygomatic diameter and cephalo-facial index show statistically significant differences (differences greater than three times the probable error of the difference). Other significant differences not listed in this compara-

tive table may be found for inter-ocular diameter and mouth breadth, with the Maronites having the smaller dimensions. We have already seen that the Maronites are predominantly Alpine and Iranian Plateau in racial derivation. It must follow then that the Druse are also predominantly Alpine and Iranian Plateau. Their difference may possibly lie in the possession by the Druse of a somewhat stronger Alpine element than in the Maronites. This may be seen in the greater bizygomatic diameter and the larger minimum frontal diameter of the Druse group.

TABLE 17. COMPARISON BETWEEN MARONITE MALES AND OTHER NEAR EASTERN GROUPS

	Maronites (This Study)	Druse (This Study)	Nusairiyeh (This Study)	Greek Orthodox (This Study)	Syrians (Seltzer) ¹	Armenians (Seltzer) ¹	Alouites (Shanklin) ²
NUMBER	31	46	25	91	251	101	268
Stature.....	167.61	167.55	169.68	167.16	167.19	166.16	166.6
Head length.....	179.13	178.89	176.16	182.70	183.06	184.30	178
Head breadth.....	151.96	151.72	152.56	151.60	155.47	157.90	149
Head height.....	139.10	138.90	138.84	135.10	127.77	127.24	125
Min. frontal diam....	105.46	106.94	105.86	104.82	106.82	107.75	110
Bizygomatic diam....	137.00	140.70	139.00	137.30	138.85	142.84	135
Total face height....	118.95	120.35	124.00	118.30	122.90	127.96	122
Upper face height....	73.95	73.65	76.00	74.65	72.80	76.61	71
Nose height.....	51.58	53.06	54.94	53.10	55.22	59.93	54
Nose breadth.....	36.74	36.77	35.84	35.36	34.76	37.96	35
Cephalic index.....	84.96	84.88	86.52	83.01	85.11	85.81	83.8
Length-height index.	77.90	77.60	79.28	74.21	69.92	69.04	70.2 ³
Breadth-height index	91.79	91.79	91.16	89.39	82.43	80.63	83.9 ³
Fronto-parietal index	69.61	70.45	69.76	69.43	68.80	68.24	73.8 ³
Cephalo-facial index.	89.87	92.72	91.52	90.56	89.57	90.33	90.6 ³
Zygo-frontal index...	77.38	76.02	76.38	76.86	76.94	75.61	81.5 ³
Total facial index...	87.30	85.60	89.40	86.65	88.58	89.74	90.8
Upper facial index...	54.44	52.61	54.68	54.32	52.61	53.67	52.6 ³
Nasal index.....	71.82	70.54	64.86	67.10	63.26	63.80	65.0

¹ Seltzer, 1936.

² Shanklin and Izzeddin, 1937.

³ Index of means.

A comparison between the Maronites and the Nusairiyeh reveals the fact that the former are longer and narrower headed, narrower faced, shorter faced and more mesorrhine. These fundamental differences between the two groups are attributable to the greater relative proportion of Armenoid-Iranian Plateau stock in the Nusairiyeh.

The Greek Orthodox series is less brachycephalic than the Maronites, much lower headed, narrower in the forehead, longer in the upper face height and nose height and smaller in nose width. Certain of these disparities appear to be the result of the

presence of a larger Mediterranean element among the Greek Orthodox than in the Maronites. Particular attention in this respect should be directed to the considerably lower cranial vault, the narrower forehead, the longer cranial length and the smaller nasal width of the Greek Orthodox group.

Shanklin's Alouites¹ are not markedly divergent from our Maronites. If we take into account all the differences which are the result of technique of measurement, we find that the Maronites are slightly taller than the Alouites, somewhat longer and broader headed, somewhat broader in the face and wider in the nose. We can only guess about the other measurements, but it is not beyond reasonable probability that they are pretty much alike in the other features listed in the comparative table.

¹ Shanklin and Izzeddin, 1937.

THE DRUSE OF THE NEAR EAST

Table 18 contains the metrical and morphological data on 46 adult Druse men. The average age for this group is 34.85 years. With respect to hair color, the Druse men may be said to be dark with about 90 per cent of the group showing either black or dark brown hair, the remaining 10 per cent being either gray or white. Eye color, however, is variable among the Druse with approximately 40 per cent with some form of mixed light eyes, 58.70 per cent with eyes classified as brown, and only 2.17 per cent of the series with dark brown eyes. Unexposed skin color was not observed for this group, but observations on the exposed parts of the body show skins which are almost invariably light brown (97.78 per cent).

The Druse are moderate in stature with a mean of 167.55 centimeters. In head length these people are decidedly short with a mean of 178.89 millimeters. They are also distinctly broad headed and high headed. The mean cephalic index of 84.84 characterizes this group as very brachycephalic. The mean length-height and breadth-height indices classify the Druse as relatively short and high headed, and broad and high headed.

The forehead is moderately broad with a mean of 106.94, while the inter-ocular diameter which expresses the distance between the eyes is quite wide. The face across the zygomatic arches is of considerable breadth, and its length from nasion to menton is slightly on the short side. The mean facial index of 85.60 for the Druse men is mesoprosopic leaning in the euryprosopic direction. The upper facial height is of good dimension, and the upper facial index of 52.61 is between the mesene and leptene classes. The nose is fairly long and not very wide. The mean nasal index of 70.54 is a mesorrhine index bordering on leptorrhiny.

In Table 19 the Druse series is divided on the basis of eye color into two groups, brown and mixed light. There was only one individual with dark brown eyes, while 27 men form the brown-eyed class and 18 the mixed light-eyed category. The two eye color groups show marked differences between them in both metric and indicial characters. In comparison to the mixed light-eyed group, the brown-eyed class is considerably taller in stature (2.46

CONTRIBUTIONS TO THE

TABLE 18. DRUSE MALES

MEASUREMENTS, INDICES AND OBSERVATIONS

MEASUREMENTS	No.	Range	Mean	S.D.	C.V.
Age.....	46	18-74	34.85±1.29	12.95±0.91	37.16±2.61
Stature.....	46	152-184	167.55±0.60	6.06±0.43	3.62±0.25
Head length.....	46	164-190	178.89±0.56	5.64±0.40	3.15±0.22
Head breadth.....	46	135-167	151.72±0.53	5.37±0.38	3.54±0.25
Head height.....	46	126-161	138.90±0.66	6.68±0.47	4.81±0.34
Min. frontal diam.....	46	97-116	106.94±0.40	4.00±0.28	3.74±0.26
Inter-ocular diam.....	46	28-45	32.78±0.29	2.94±0.21	8.97±0.63
Bizygomatic diam.....	46	130-159	140.70±0.50	6.05±0.36	3.59±0.25
Total face height.....	46	100-139	120.35±0.64	5.45±0.45	5.36±0.38
Upper face height....	46	65-84	73.65±0.45	4.55±0.32	6.18±0.43
Nose height.....	46	44-67	53.06±0.49	4.96±0.35	9.35±0.66
Nose breadth.....	46	28-48	36.77±0.34	3.45±0.24	9.38±0.66
Mouth breadth.....	41	44-63	53.20±0.36	3.44±0.26	6.47±0.48
Lip thickness.....	41	6-25	13.24±0.37	3.52±0.26	26.59±1.98
Hand squeeze, right... 46	26-61	42.99±0.69	6.96±0.49	16.19±1.14	
Hand squeeze, left.... 46	20-58	41.34±0.79	7.98±0.56	19.30±1.36	
INDICES					
Cephalic index.....	46	74-100	84.84±0.46	4.62±0.32	5.45±0.38
Length-height index..	46	70-87	77.60±0.29	2.91±0.20	3.75±0.26
Breadth-height index.	46	82-105	91.79±0.43	4.35±0.31	4.74±0.33
Fronto-parietal index.	46	63-77	70.45±0.28	2.79±0.20	3.96±0.28
Cephalo-facial index..	46	85-105	92.72±0.35	3.54±0.25	3.82±0.27
Zygo-frontal index....	46	68-83	76.02±0.33	3.28±0.23	4.31±0.30
Facial index.....	46	70-99	85.60±0.50	5.05±0.36	5.90±0.41
Upper facial index....	46	43-60	52.61±0.36	3.66±0.26	6.96±0.49
Nasal index.....	46	48-99	70.54±1.01	10.20±0.72	14.46±1.02
OBSERVATIONS					
Hair Color		No.	%	Skin Color (exposed)	
Black.....	30	76.92		Light brown.....	44 97.78
Brown.....	5	12.82		Light red br.....	1 2.22
Gray.....	3	7.69			
White.....	1	2.56		Total.....	45 100.00
Total.....	39	99.99			
Eye Color					
Dark brown.....	1	2.17			
Brown.....	27	58.70			
Green.....	1	2.17			
Olive.....	1	2.17			
Gray.....	9	19.57			
Blue.....	7	15.22			
Total.....	46	100.00			

cm.), shorter headed and broader headed, higher in the cranial vault, broader in the forehead, approximately the same in inter-ocular and bizygomatic breadth, distinctly longer in the total facial height dimension and in the upper face height segment, longer and narrower in the nose and thicker in the lips. Indicially, the

brown-eyed class is more brachycephalic, higher in the length-height index of the cranial vault, lower in the breadth-height index, narrower faced relative to the width of the head, broader in the forehead in relation to the facial breadth, more leptoprosopic, more leptene and more leptorrhine.

It would appear then that the brown-eyed group leans more strongly towards the Armenoid-Iranian Plateau type than does the mixed light-eyed category. The Alpine element is ineradica-

TABLE 19. DRUSE MALES BY EYE COLOR

MEASUREMENTS	Brown 27	Mixed Light 18
Age.....	35.35	34.50
Stature.....	168.45	165.99
Head length.....	177.66	180.66
Head breadth.....	152.23	150.82
Head height.....	139.78	137.74
Minimum frontal diameter.....	107.26	106.94
Inter-ocular diameter.....	32.66	32.66
Bizygomatic diameter.....	140.90	140.60
Total face height.....	121.05	118.65
Upper face height.....	74.20	72.30
Nose height.....	53.22	52.62
Nose breadth.....	36.56	37.01
Mouth breadth.....	53.90	54.62
Lip thickness.....	13.20	12.62
INDICES		
Cephalic index.....	85.68	84.00
Length-height index.....	78.32	77.16
Breadth-height index.....	91.79	92.00
Fronto-parietal index.....	70.57	70.66
Cephalo-facial index.....	92.45	93.32
Zygo-frontal index.....	76.18	75.94
Total facial index.....	85.90	84.50
Upper facial index.....	53.12	51.83
Nasal index.....	70.10	71.50

bly bound up with both the brown-eyed and mixed light-eyed classes. The shortness of stature, and of facial length in the latter group suggests an East Baltic strain rather than some mixed Nordic stock. Like the Maronites, the Druse are predominantly Alpine and Iranian Plateau in racial derivation, with the Alpine element probably in excess. Additional racial stocks present, but in slight quantities only, are the Mediterranean and East Baltic.

Table 20 compares the means and measurements of the Druse males with those of several other Near Eastern groups. The most intimate relationship is, of course, with the Maronites. Their sim-

ilarities and differences have already been discussed in detail, and the conclusion noted that the disparities in physical characteristics between the two groups may be accounted for by the greater proportion of Alpine blood among the Druse.

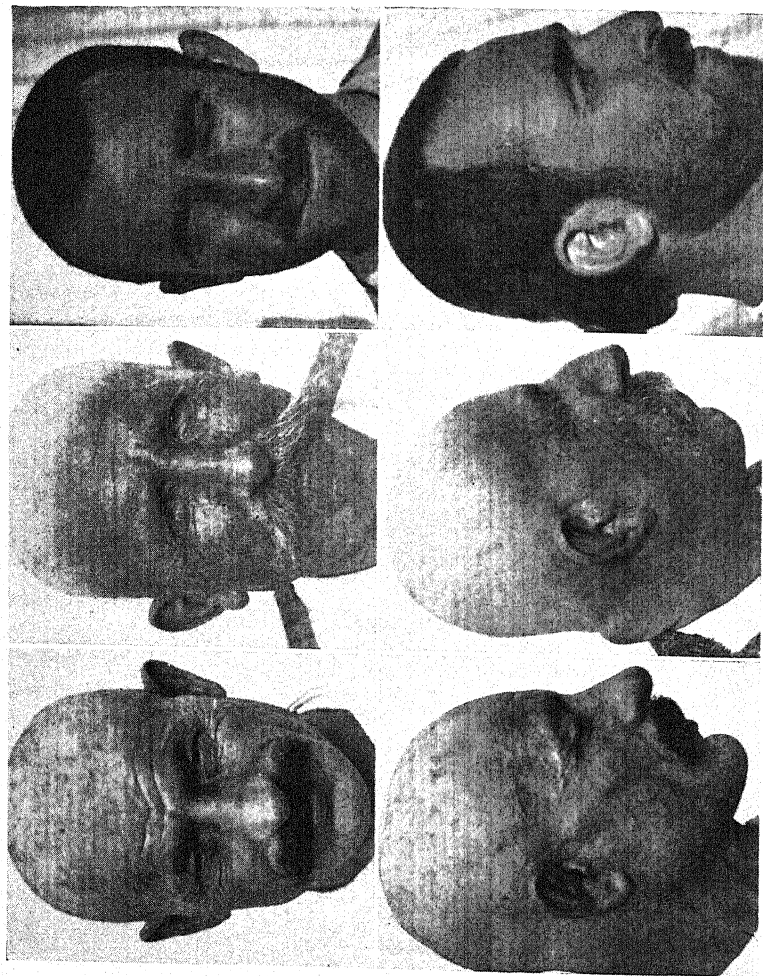
TABLE 20. COMPARISON BETWEEN DRUSE MALES AND OTHER NEAR EASTERN GROUPS

	Druse (This Study) 46	Bedawins (This Study) 115	Maronites (This Study) 31	Nusairiyeh (This Study) 25	Greek Orthodox (This Study) 91	Syrians (Seltzer) ¹ 251	Armenians (Seltzer) ¹ 101
Stature.....	167.55	166.86	167.61	169.68	167.16	167.19	166.16
Head length.....	178.89	189.09	179.13	176.16	182.70	183.06	184.30
Head breadth.....	151.72	144.46	151.96	152.56	151.60	155.47	157.90
Head height.....	138.90	134.50	139.10	138.84	135.10	127.77	127.24
Min. frontal diam...	106.94	103.42	105.46	105.86	104.82	106.82	107.75
Bizygomatic diam...	140.70	135.30	137.00	139.00	137.30	138.85	142.84
Total face height....	120.35	119.70	118.95	124.00	118.30	122.90	127.96
Upper face height...	73.65	74.05	73.95	76.00	74.65	72.80	76.61
Nose height.....	53.06	52.70	51.58	54.94	53.10	55.22	59.93
Nose breadth.....	36.77	36.41	36.74	35.84	35.36	34.76	37.96
Cephalic index.....	84.88	76.29	84.96	86.52	83.01	85.11	85.81
Length-height index.	77.60	71.09	77.90	79.28	74.21	69.92	69.04
Breadth-height index	91.79	93.14	91.79	91.16	89.39	82.43	80.63
Fronto-parietal index	70.45	71.56	69.61	69.76	69.43	68.80	68.24
Cephalo-facial index.	92.72	93.65	89.87	91.52	90.56	89.57	90.33
Zygo-frontal index...	76.02	76.66	77.38	76.38	76.86	76.94	75.61
Total facial index...	85.60	88.60	87.30	89.40	86.65	88.58	89.74
Upper facial index...	52.61	54.74	54.44	54.68	54.32	52.61	53.67
Nasal index.....	70.54	69.46	71.82	64.86	67.10	63.26	63.80

¹ Seltzer, 1936.

The Nusairiyeh diverge from the Druse in a number of characteristics. The former are more brachycephalic, somewhat narrower in the forehead and the face, and considerably longer in the facial lengths as well as in the nasal length. These features suggest that compared with the Druse, the Nusairiyeh have a much larger element of Armenoid-Iranian Plateau blood.

Neither the Greek Orthodox series nor the Syrian and Armenian groups show close resemblances to our Druse. The Greek Orthodox are much more Mediterranean than the Druse, while the Syrians are more Alpinoid.



NUSAIRUYEH

THE NUSAIRIYEH OF THE NEAR EAST

The Nusairiyeh series consists of 25 adult males whose average age is calculated to be 34.80 years. This group is highly variable in pigmentation. With respect to eye color we find that almost half of the total number of individuals have some grade of mixed-light eyes. The next largest category is the brown which includes 40 per cent of the series. This is followed by the dark brown-eyed category amounting to but 12 per cent of the total number. Unexposed skin color is very light for a Near Eastern group, with as much as 87.50 per cent of the individuals classified as having pale skin colors and the remainder described as yellowish white. Hair color among the Nusairiyeh is surprisingly enough totally on the dark side. About 40 per cent of the group have black head hair, more than 50 per cent have dark brown hair, and less than 5 per cent have brown hair. From the photographs it appears that the presence of the external, or Nordic fold, is an extremely common feature for these people. Foreheads seem to be extraordinarily high and steep. The noses are narrow in the root and broaden as one approaches the base. The height of the root and bridge of the nose, however, as it projects from the face is extraordinarily developed. The profile seems to be either straight or convex, and a depression of the nasal tip certainly does occur. The sugar-loafed shape of the skull vault, and particularly the occiput, seems to be characteristic of the group. Mustaches appear to be well developed and the chin decidedly on the weak and retrogressive side.

Metrically, the Nusairiyeh are moderate to tall in stature with a mean of 169.68 centimeters. The heads are decidedly short as well as distinctly broad. The mean cephalic index of 86.52 characterizes the Nusairiyeh as hyper-brachycephalic. In head height this group is unusually well developed with a mean of 138.84 millimeters. The minimum frontal diameter is moderate in size, but the inter-ocular diameter with a mean of 30.92 is definitely quite narrow. The fronto-parietal index of 69.76 suggests a relatively narrow forehead as compared with the breadth of the head in the parietal region. The width of the face is not excessive but yet it may be considered to be on the broad side (139.00 mm.). The height of the face from hairline to chin is very great, and the total

TABLE 21. NUSAIRIYEH MALES

MEASUREMENTS, INDICES AND OBSERVATIONS

MEASUREMENTS	No.	Range	Mean	S.D.	C.V.
Age.....	25	18- 69	34.80 \pm 1.92	14.20 \pm 1.35	40.80 \pm 3.89
Stature.....	25	152-184	169.68 \pm 0.91	6.75 \pm 0.64	3.98 \pm 0.38
Head length.....	25	161-187	176.16 \pm 0.87	6.42 \pm 0.61	3.64 \pm 0.35
Head breadth.....	25	138-164	152.56 \pm 0.87	6.48 \pm 0.62	4.25 \pm 0.41
Head height.....	25	130-149	138.84 \pm 0.72	5.36 \pm 0.51	3.85 \pm 0.37
Min. frontal diam.....	25	93-116	105.86 \pm 0.64	4.76 \pm 0.45	4.50 \pm 0.43
Inter-ocular diam.....	25	25- 36	30.92 \pm 0.34	2.52 \pm 0.24	8.15 \pm 0.78
Bizygomatic diam.....	25	130-149	139.00 \pm 0.51	3.75 \pm 0.36	2.70 \pm 0.26
Physiognomic face ht..	23	163-218	187.98 \pm 1.75	12.44 \pm 1.24	6.62 \pm 0.66
Total face height.....	25	110-144	124.00 \pm 1.09	8.10 \pm 0.77	6.53 \pm 0.62
Upper face height.....	25	65- 89	76.00 \pm 0.74	5.50 \pm 0.52	7.24 \pm 0.69
Nose height.....	25	44- 67	54.94 \pm 0.57	4.20 \pm 0.40	7.64 \pm 0.73
Nose breadth.....	25	23- 42	35.84 \pm 0.37	2.76 \pm 0.26	7.70 \pm 0.73
Mouth breadth.....	25	46- 57	52.26 \pm 0.38	2.80 \pm 0.27	5.36 \pm 0.51
Lip thickness.....	25	8- 19	13.54 \pm 0.43	3.16 \pm 0.30	23.34 \pm 2.23
Ear length, right.....	25	56-73	62.88 \pm 0.49	3.66 \pm 0.36	5.82 \pm 0.56
Hand squeeze, right...	25	23- 52	42.48 \pm 0.94	6.96 \pm 0.66	16.38 \pm 1.56
Hand squeeze, left....	25	26- 52	39.72 \pm 0.77	5.70 \pm 0.54	14.35 \pm 1.37
INDICES					
Cephalic index.....	25	77- 97	86.52 \pm 0.62	4.62 \pm 0.44	5.34 \pm 0.51
Length-height index..	25	73- 87	79.28 \pm 0.50	3.72 \pm 0.35	4.69 \pm 0.45
Breadth-height index.	25	79- 99	91.16 \pm 0.53	3.93 \pm 0.37	4.31 \pm 0.41
Fronto-parietal index.	25	63- 77	69.76 \pm 0.39	2.91 \pm 0.28	4.17 \pm 0.40
Cephalo-facial index..	25	85- 99	91.52 \pm 0.44	3.24 \pm 0.31	3.54 \pm 0.34
Zygo-frontal index....	25	68- 83	76.38 \pm 0.39	2.88 \pm 0.27	3.77 \pm 0.36
Total facial index.....	25	75-104	89.40 \pm 0.81	6.00 \pm 0.57	6.71 \pm 0.64
Upper facial index....	25	46- 66	54.63 \pm 0.46	3.39 \pm 0.32	6.20 \pm 0.59
Nasal index.....	25	44- 79	64.86 \pm 0.98	7.28 \pm 0.69	11.22 \pm 1.07
OBSERVATIONS					
Hair Color	No.	%	Skin Color (unexposed)		
Black.....	9	40.91	Yellowish white....	3	12.50
Dark brown.....	12	54.55	Pale.....	21	87.50
Brown.....	1	4.55			
Total.....	22	100.01	Total.....	24	100.00
Eye Color			(Skin Color exposed)	No.	%
Dark brown.....	3	12.00	Copper colored....	6	24.00
Brown.....	10	40.00	Olive yellow.....	9	36.00
Hazel.....	5	20.00	Yellowish white....	9	36.00
Gray.....	2	8.00	Ruddy white.....	1	4.00
Blue.....	3	12.00			
Light blue.....	2	8.00	Total.....	25	100.00
Total.....	25	100.00			

face height from nasion to menton is of more than ordinary length. The total facial index, in spite of the width of the zygomatich arches, falls in the leptoprosopic class. The mean upper facial height of 76.00 is truly unusual in its great length. The nose

itself is very long with a mean of 54.94 millimeters and of moderate breadth. The mouth is quite wide and the lips unusually thin. The mean nasal index of 64.86 indicates a very leptorrhine nose, its leptorrhiny being due more to its great length than to any narrowness in the region of the alae.

From the point of view of racial diagnosis, it may be clearly seen that the head is unmistakably ultra-Armenoid. It lacks the narrowness in the bi-parietal region of the typical pure Iranian Plateau cranial vault. The frontal region is, however, similar in dimensions to the more or less pure Iranian Plateau type. The face lacks the width of the Armenoid and Iranian Plateau forms. The nose has the Armenoid and Iranian Plateau length but not its width. It lacks also the marked frequency of the depressed form of nasal tips, the flare of the alae and the great predominance of pronounced convex profiles. The lips are thinner than usually found among the Armenoids and the Iranian Plateau groups, and the eyebrows are thinner and the brow ridge less developed. This much is clear—the predominant element forming the Nusairiyeh is Armenoid and to a lesser extent pure Iranian Plateau. The next strongest element is one which tends towards narrow foreheads, narrow faces, narrow noses and thin lips. It seems highly possible that, inasmuch as a little more than half of the series has some form of mixed light eyes, this element may well be Nordic. Unfortunately the small size of the series prevents us from testing this hypothesis by means of eye color sortings. The Nusairiyeh then is a group of mixed racial forms which seems to be stabilizing itself into a distinctive type. They are predominantly Armenoid and Iranian Plateau with an admixture of Nordic, plus traces of a Mediterranean-Arab strain.

Table 22 compares the Nusairiyeh with Shanklin's Alouites,¹ the Greek Orthodox series of this study, and Seltzer's Syrian and Armenian series.² The disparities between the Nusairiyeh and the Alouites are very great even after the differences due to technique of measurement are taken into account. The Nusairiyeh are taller in stature, larger headed, more brachycephalic, broader faced and longer faced than the Alouites.

The Greek Orthodox contrasted against the Nusairiyeh are much longer in head length, shorter in stature, very much lower

¹ Shanklin and Izzeddin, 1937.

² Seltzer, 1936.

in head height, narrower in forehead and face and shorter in facial lengths and nasal length. Most of these features may be attributed to the greater Mediterranean element in the Greek Orthodox group. It should be pointed out, however, that the Mediterranean element in the Greek Orthodox group is not the dominant racial strain in its composition.

TABLE 22. COMPARISON BETWEEN NUSAIRIYEH MALES AND OTHER NEAR EASTERN GROUPS

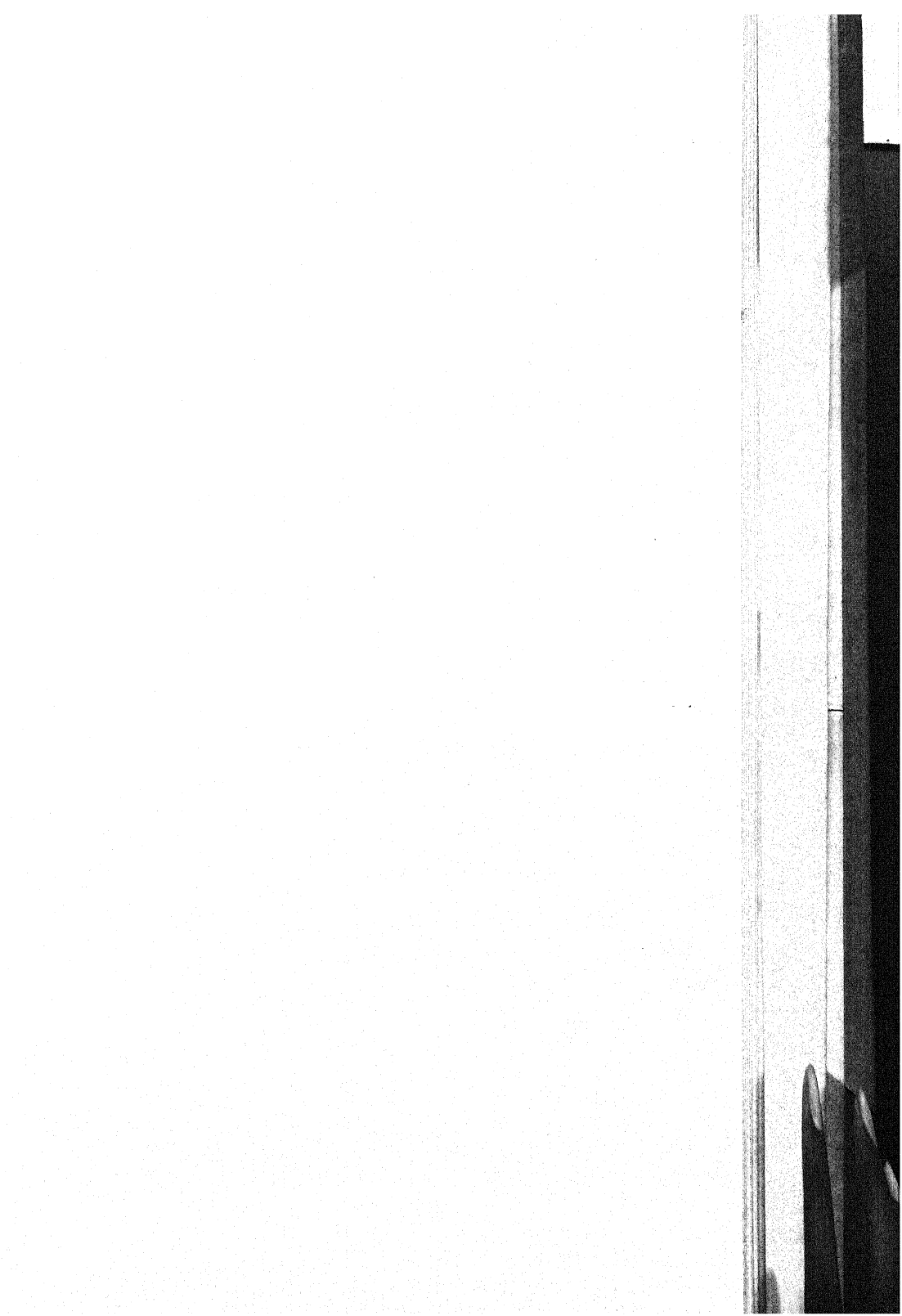
	Nusairiyeh (This Study)	Alouites (Shanklin) ¹	Greek Orthodox (This Study)	Syrians (Seltzer) ²	Armenians (Seltzer) ²
Number	25	263	91	251	101
Stature.....	169.68	166.6	167.16	167.19	166.16
Head length.....	176.16	178	182.70	183.06	184.30
Head breadth.....	152.56	149	151.60	155.47	157.90
Head height.....	138.84	125	135.10	127.77	127.24
Minimum frontal diameter.....	105.86	110	104.82	106.82	107.75
Bizygomatic diameter.....	139.00	135	137.30	138.85	142.84
Total face height.....	124.00	122	118.30	122.90	127.96
Upper face height.....	76.00	71	74.65	72.80	76.61
Nose height.....	54.94	54	53.10	55.22	59.93
Nose breadth.....	35.84	35	35.36	34.76	37.96
Cephalic index.....	86.52	83.8	83.01	85.11	85.81
Length-height index.....	79.28	70.2 ³	74.21	69.92	69.04
Breadth-height index.....	91.16	83.9 ²	88.39	82.43	80.63
Fronto-parietal index.....	69.76	73.8 ³	69.43	68.80	68.24
Cephalo-facial index.....	91.52	90.6 ³	90.56	89.57	90.33
Zygo-frontal index.....	76.38	81.5 ³	76.86	76.94	75.61
Total facial index.....	89.40	90.8	86.65	88.58	89.74
Upper facial index.....	54.68	52.6 ³	54.32	52.61	53.67
Nasal index.....	64.86	65.0	67.10	63.26	63.80

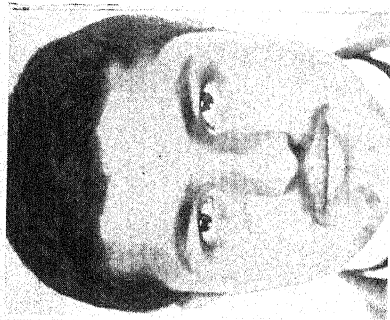
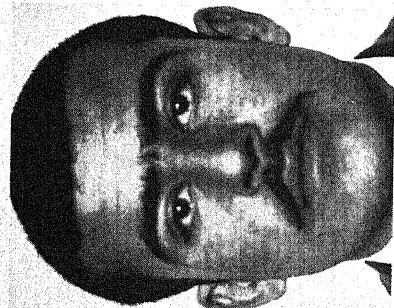
¹ Shanklin and Izzeddin, 1937.

² Seltzer, 1936.

³ Index of means.

It is interesting to note that, apart from the length-height and breadth-height indices, the Armenians and the Nusairiyeh are very similar in all the other indicial characters. The differences in length-height and breadth-height indices may be in part the result of differences in technique of measuring the head height diameter.





GREEK ORTHODOX

THE GREEK ORTHODOX OF THE NEAR EAST

This group of heterogeneous peoples confessing the Greek Orthodox faith is 91 in number and averages 26.75 years of age. In hair color they are predominantly dark with 41.76 per cent of the series falling into the black classification. Slightly more frequent is the dark brown variety of hair color, which was recorded in 45.05 per cent. The remainder of the group have chestnut, chestnut and blonde, blonde, and brown hair. Unexposed skin color is light brown in about 42 per cent of the individuals and copper colored in approximately 34 per cent. Eye color among the Greek Orthodox males is quite variable. Somewhat more than one-half of the series display brown eyes, about 30 per cent show eyes classified as mixed-light, and the residuum is characterized by the possession of dark brown eyes (16.09 per cent).

Metrically this group can be considered to have a moderate stature, a short head, but not excessively short, and a rather wide cranial vault. The mean cephalic index of 83.01 is brachycephalic. Out of the 91 individuals in the series as many as 44 have cephalic indices ranging from 83 to 97. Only 8 individuals have cephalic indices 76 and under. The height of the cranial vault is great but is nevertheless considerably below that of the Maronites, Nusairiyeh, Samaritans and Druse. The mean head height amounts to 135.10 millimeters. The forehead is moderate in its breadth as is the distance between the inner palpebral margins of the eyes. The width of the face is not very great. The height of the face from the chin to the hairline is of good dimensions with a mean of 180.54 millimeters. However, the total face height diameter measured from nasion to menton is on the short side with a mean of 118.30 millimeters. The proportions of the face as indicated by the total facial index are definitely mesoprosopic.

The nasal height shows a mean of 53.10 millimeters which exemplifies a nose of considerable length. The breadth of the nose as measured across the alae is not very great, and in fact has a tendency towards narrowness. The relation of the breadth of the nose to its length as expressed by the nasal index averages 67.10 for the Greek Orthodox males, this being a moderately leptorhine nasal index. The mouth is fairly broad, and the thickness of

TABLE 23. GREEK ORTHODOX MALES
MEASUREMENTS, INDICES AND OBSERVATIONS

MEASUREMENTS	No.	Range	Mean	S.D.	C.V.
Age.....	87	18- 64	26.75 \pm 0.77	10.60 \pm 0.54	39.63 \pm 2.03
Stature.....	88	143-184	167.16 \pm 0.47	6.57 \pm 0.33	3.93 \pm 0.20
Head length.....	91	164-199	182.70 \pm 0.52	7.32 \pm 0.37	4.01 \pm 0.20
Head breadth.....	91	135-170	151.60 \pm 0.52	7.38 \pm 0.37	4.87 \pm 0.24
Head height.....	89	118-153	135.10 \pm 0.47	6.52 \pm 0.33	4.83 \pm 0.24
Min. frontal diam....	91	89-116	104.82 \pm 0.33	4.72 \pm 0.24	4.50 \pm 0.22
Inter-ocular diam....	91	22- 37	31.10 \pm 0.27	2.91 \pm 0.15	9.36 \pm 0.47
Bizygomatic diam....	90	125-154	137.30 \pm 0.42	5.85 \pm 0.29	4.26 \pm 0.21
Physiognomic face ht..	75	155-206	180.54 \pm 0.68	8.68 \pm 0.48	4.81 \pm 0.26
Total face height.....	90	100-134	118.30 \pm 0.44	6.20 \pm 0.31	5.24 \pm 0.26
Upper face height....	90	60- 89	74.65 \pm 0.32	4.45 \pm 0.22	5.96 \pm 0.30
Nose height.....	90	44- 63	53.10 \pm 0.24	3.32 \pm 0.17	6.25 \pm 0.31
Nose breadth.....	91	25- 45	35.36 \pm 0.20	2.85 \pm 0.14	8.06 \pm 0.40
Mouth breadth.....	82	40- 61	51.94 \pm 0.28	3.76 \pm 0.20	7.24 \pm 0.38
Lip thickness.....	82	4- 23	15.14 \pm 0.27	3.62 \pm 0.19	23.91 \pm 1.26
Ear length, right....	82	50- 76	62.19 \pm 0.27	3.63 \pm 0.19	5.84 \pm 0.31

Hand squeeze, right...	88	20- 67	43.32 \pm 0.67	9.36 \pm 0.48	21.61 \pm 1.10
Hand squeeze, left....	88	17- 61	39.72 \pm 0.69	9.60 \pm 0.49	24.17 \pm 1.23

INDICES

Cephalic index.....	91	71- 97	83.01 \pm 0.38	5.37 \pm 0.27	6.47 \pm 0.32
Length-height index..	89	64- 84	74.21 \pm 0.30	4.23 \pm 0.21	5.70 \pm 0.29
Breadth-height index.	89	73-105	89.39 \pm 0.41	5.76 \pm 0.29	6.44 \pm 0.33
Fronto-parietal index.	91	60- 80	69.43 \pm 0.27	3.87 \pm 0.19	5.57 \pm 0.28
Cephalo-facial index..	90	82- 99	90.56 \pm 0.26	3.69 \pm 0.19	4.07 \pm 0.20
Zygo-frontal index....	90	68- 91	76.86 \pm 0.27	3.84 \pm 0.19	5.00 \pm 0.25
Total facial index....	90	70-109	86.65 \pm 0.43	6.10 \pm 0.31	7.04 \pm 0.35
Upper facial index....	90	43- 63	54.32 \pm 0.26	3.69 \pm 0.19	6.79 \pm 0.34
Nasal index.....	90	52- 87	67.10 \pm 0.46	6.52 \pm 0.33	9.72 \pm 0.49

OBSERVATIONS

Hair Color	No.	%	Skin Color (unexposed)	No.	%
Black.....	38	41.76	Dark reddish brown	1	1.19
Dark brown.....	41	45.05	Copper colored....	29	34.52
Brown.....	7	7.69	Dark yellow brown.	15	17.86
Chestnut.....	2	2.20	Light brown.....	36	42.86
Chestnut + blonde..	1	1.10	Very light brown...	3	3.57
Blonde.....	2	2.20			
Total.....	91	100.00	Total.....	84	100.00

Eye Color	No.	%	Skin Color (exposed)	No.	%
Dark brown.....	14	16.09	Copper colored....	18	19.78
Brown.....	47	54.02	Light brown.....	20	21.98
Hazel.....	7	8.05	Very light brown...	24	26.37
Green.....	1	1.16	Olive yellow.....	18	19.78
Green and gray....	1	1.16	Yellow white.....	10	10.99
Gray.....	5	5.75	Pale white.....	1	1.10
Blue.....	12	13.79			
Total.....	87	100.02	Total.....	91	100.00

the lips is quite marked with a mean of 15.14 millimeters. The length of the ear is on the long side but nevertheless is shorter than in any of the other groups described in this paper.

The division of the Greek Orthodox males by eye color classes reveals some rather striking differences in metric and indicial characters. In comparison with the brown-eyed and mixed light-eyed groups, the dark brown-eyed class is the shortest in head

TABLE 24. GREEK ORTHODOX MALES BY EYE COLOR

MEASUREMENTS	Dark Brown 14	Brown 47	Mixed-Light 26
Age.....	25.45	27.80	25.65
Stature.....	166.29	168.21	166.38
Head length.....	181.71	183.27	183.00
Head breadth.....	147.58	151.57	154.36
Head height.....	132.66	136.14	135.34
Minimum frontal diameter.....	105.06	104.62	104.90
Inter-ocular diameter.....	31.58	31.31	30.00
Bizygomatic diameter.....	135.95	137.35	138.75
Physiognomic face height.....	178.78	186.98	178.02
Total face height.....	119.50	119.15	116.40
Upper face height.....	74.15	75.80	72.95
Nose height.....	51.78	54.02	51.98
Nose breadth.....	34.37	36.02	34.64
Mouth breadth.....	51.78	51.82	52.84
Lip thickness.....	15.78	15.58	14.58
Ear length, right.....	61.87	62.55	61.95
INDICES			
Cephalic index.....	81.21	82.65	84.69
Length-height index.....	72.92	74.48	74.57
Breadth-height index.....	90.50	89.99	87.74
Fronto-parietal index.....	70.21	69.61	67.93
Cephalo-facial index.....	91.58	90.71	89.48
Zygo-frontal index.....	77.78	76.54	76.26
Total facial index.....	87.15	86.80	84.70
Upper facial index.....	54.29	55.16	52.55
Nasal index.....	66.34	67.58	67.18

length, by far the narrowest in head breadth, the lowest by a considerable margin in head height, the greatest in inter-ocular diameter, the narrowest in facial breadth, possibly the longest in total face height, perhaps the shortest in nose height, the narrowest in nasal breadth, the lowest in cephalic index, the lowest in length-height index of the cranial vault, the highest in breadth-height index, the highest in cephalo-facial and zygo-frontal indices, the highest in total facial index and the most leptorrhine.

The brown-eyed group, which is by far the largest of the three eye color divisions, is in comparison with the others, the tallest in

stature, perhaps the longest in head length, the highest in cranial vault elevation, by far the greatest in physiognomic face height, the greatest in upper face height, again by far the longest in nose height, the broadest in nasal width and the longest in ear length. The brown-eyed men are also the most leptene and possibly the least leptorrhine.

When compared with the dark brown and brown-eyed classes we find that the mixed light-eyed category is outstanding in the

TABLE 25. COMPARISON BETWEEN GREEK ORTHODOX MALES AND OTHER NEAR EASTERN GROUPS

	Greek Orthodox	Moslems	Syrians	Armenians	Turks	Nusairiyeh
	(This Study)	(This Study)	(Seltzer) ¹	(Seltzer) ¹	(Hasluck and Morant) ²	(This Study)
Number	91	258	251	101	200	25
Stature.....	167.16	168.00	167.19	166.16	167.92	169.68
Head length.....	182.70	184.98	183.06	184.30	180.93	176.16
Head breadth.....	151.60	147.28	155.47	157.90	152.65	152.56
Head height.....	135.10	136.26	127.77	127.24	....	138.84
Min. frontal diam....	104.82	104.86	106.82	107.75	....	105.46
Bizygomatic diam....	137.30	137.25	138.85	142.84	142.28	139.00
Total face height....	118.30	120.65	122.90	127.96	124.22	124.00
Upper face height....	74.65	74.60	72.80	76.61	....	76.00
Nose height.....	53.10	52.98	55.22	59.93	53.95	54.94
Nose breadth.....	35.36	36.71	34.76	37.96	36.65	35.84
Cephalic index.....	83.01	79.74	85.11	85.81	87.20	86.52
Length-height index..	74.21	73.79	69.92	69.04	....	79.28
Breadth-height index	89.39	92.45	82.43	80.63	....	91.16
Fronto-parietal index	69.43	71.17	68.80	68.24	....	69.76
Cephalo-facial index..	90.56	93.20	89.57	90.33	90.25	91.52
Zygo-frontal index....	76.86	76.62	76.94	75.61	....	76.38
Total facial index....	86.65	88.00	88.58	89.74	87.40	89.40
Upper facial index....	54.32	54.41	52.61	53.67	....	54.68
Nasal index.....	67.10	69.46	63.26	63.80	67.20	64.86

¹ Seltzer, 1936.

² Hasluck and Morant, 1929.

breadth of the cranial vault, in the width of the face, in the shortness of the total face height, in the width of the mouth, in the thinness of the lips, in its hyperbrachycephaly, in the lowness of the breadth-height index, in the lowness of the cephalo-facial and zygo-frontal indices, in their mesoprosopism and in their euryene proportion of the upper facial dimensions.

From an analysis of the above data it would appear that the dark brown-eyed class seems to show as an important element in its make-up a strong Mediterranean strain. This is evidenced by the tendency towards dolichocephaly, the lowness of the cranial vault, the narrowness of the face, the shortness of the nose and

the narrowness of the nose in absolute dimensions and in relative proportions. The dominant note in the brown-eyed class is undoubtedly the Armenoid-Iranian Plateau stocks. This is seen in the greater size of the cranial vault, in the excessive height of the head above the auditory meatus, particularly in the marked length of the physiognomic face height, in the pronounced upper facial dimension, in the length of the nose and in the greater width of the nose. The characteristics of the mixed light-eyed group are not as clear as for the other two eye color classes. There appears to be in this group some Nordic and East Baltic element, some Alpine and Iranian Plateau, but in what proportions these strains are present it is impossible to say.

In summary then this group of individuals with a common religious bond, the Greek Orthodox church, seems to be a diffuse mixture of Armenoid-Iranian Plateau-Alpine blood, with a somewhat lesser amount of Mediterranean and a definite strain of some sort of Nordic or East Baltic stock.

The Greek Orthodox series when compared with the Moslems reveals striking differences in cranial characters but on the whole is not very dissimilar in facial and nasal features. The Greek Orthodox are somewhat shorter in stature than the Moslems, shorter headed, very much broader headed, and slightly lower in the cranial vault elevation from auditory meati to vertex. They are similar in minimum frontal diameter, bizygomatic diameter, upper face height and nose height. The Greek Orthodox group shows a brachycephalic mean for the length-breadth index of the head, while the Moslems are distinctly mesocephalic. The two groups are not significantly divergent in the length-height index, the zygo-frontal index and the upper facial index, but the Greek Orthodox have lower values in the case of the breadth-height, cephalo-facial, total facial and nasal indices. The Moslems are much more Mediterranean in racial derivation than the Greek Orthodox series, while the latter display considerably more Alpine and Armenoid-Iranian Plateau strains.

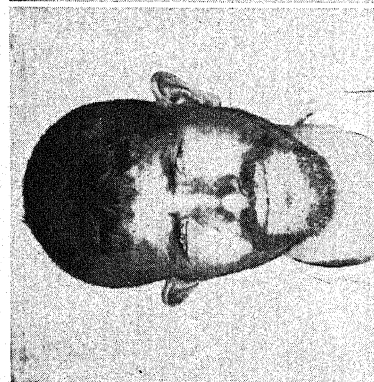
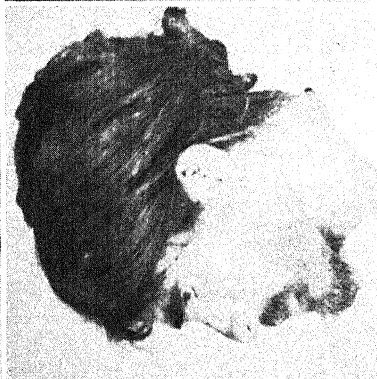
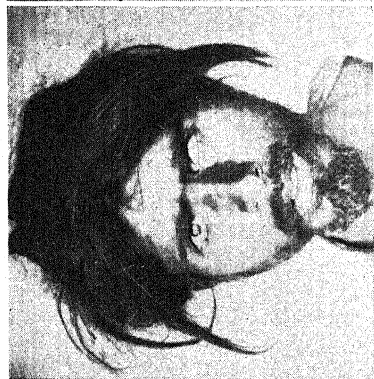
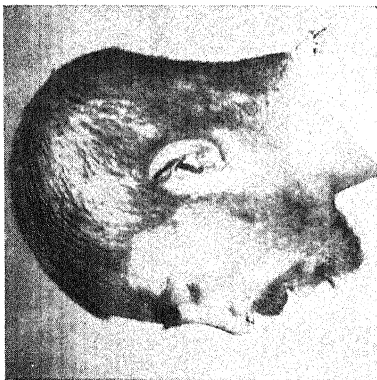
The Greek Orthodox do not differ very much from the Syrians and Armenians in stature but show a much shorter and narrower head which is less brachycephalic than the latter groups. The Syrians and Armenians have higher minimum frontal and bizygomatic diameters. If technique of measurement differences is

taken into account it is possible that the Syrians have approximately the same total facial length as the Greek Orthodox and that the Armenians have considerably longer faces. In general, the Syrians are closer to the Greek Orthodox series in physical characteristics than the Armenians.

Hasluck's and Morant's¹ series of Turks approximate the Greek Orthodox group in stature and probably in total face height. The former are more brachycephalic, considerably broader faced and somewhat wider in the nose. It would appear then, that the Greek Orthodox group is stronger in Mediterranean elements, and weaker in Alpinoid and possibly Iranian Plateau stocks.

The Nusairiyeh males are taller than the Greek Orthodox, considerably shorter headed, slightly broader headed, more than three index units higher in cephalic index, much higher headed, a little broader in the forehead and in the face, very much more leptoprosopic and leptorrhine. The two groups are principally differentiated in the possession by the Nusairiyeh of a stronger Armenoid-Iranian Plateau element.

¹ Hasluck and Morant, 1929.



GYPSIES

THE GYPSIES OF THE NEAR EAST

Measurements and photographs were taken on 11 adult male Gypsies. Although we have so very few individuals in the group, their distinctiveness and apparent homogeneity will permit us to make some general remarks as to their physical and racial characteristics. The data for this group of Gypsies are presented in Table 26. Naturally the small size of the series has prevented us from calculating constants of variability and sampling errors of any value. We have accordingly simply listed the number, range and means for the measurements and indices, and tabulated the number and percentage of the eye color gradations.

It is interesting to note that all 11 of our Gypsies have dark eyes which were recorded as either dark brown or brown. The absence of some light and mixed light eyes in this series is outstanding. Dark brown eyes are much more frequent than the brown variety with 8 out of the 11 in the former class. The mean age of the group is 32.90 years, and the stature is moderate with a mean of 168.81 centimeters. In stature then, the Gypsies are comparable to almost all the other series presented in this manuscript. The head is of moderate length but distinctly narrow in width. Only the Samaritans, Bedawins and Turkomans of all the groups in our study have greater head lengths. In head width, however, the Gypsies are narrower than any of the other groups in this study. The mean cephalic index of 76.65 for the Gypsies is a dolichocephalic mean and is lower than all the other series except the Bedawins (76.29) and the Turkomans (75.33). In the height of the cranial vault the Gypsies present a mean of 130.42 millimeters which is markedly lower than the cranial vaults of any of the other groups. The forehead is quite narrow, and the breadth of the face with a mean of 133.80 millimeters is very small and is only exceeded in narrowness by the Samaritans.

The Gypsies have very short faces, as may be seen from the low physiognomic, total facial and upper facial dimensions. The total facial index of 87.90 is on the border line of mesoprosopy and leptoprosopy. The upper facial index, however, falls into the leptene classification. The length of the nose is also short with a mean of 49.86 millimeters, but in nasal width the Gypsies attain

moderate dimensions. Accordingly, the mean nasal index (73.50) is mesorrhine. The lips are on the heavy side with a mean of 15.60 millimeters, and the mouth is only medium in its breadth. The ear length is distinctly short in the Gypsies with a mean of 57.27 millimeters, far shorter than any of the other groups presented in this study.

TABLE 26. GYPSY MALES

MEASUREMENTS, INDICES AND OBSERVATIONS			
MEASUREMENTS	No.	Range	Mean
Age.....	11	18- 59	32.90
Stature.....	11	158-178	168.81
Head length.....	11	179-196	186.27
Head breadth.....	11	135-149	143.35
Head height.....	11	122-141	130.42
Minimum frontal diameter.....	11	101-112	104.70
Bizygomatic diameter.....	11	130-144	133.80
Inter-ocular diameter.....	11	28-33	30.92
Physiognomic face height.....	11	159-182	173.58
Total face height.....	11	105-134	117.45
Upper face height.....	11	65- 79	72.00
Nose height.....	11	44- 55	49.86
Nose breadth.....	11	31- 45	36.65
Mouth breadth.....	11	44- 55	51.04
Lip thickness.....	11	12- 21	15.60
Ear length, right.....	11	50- 67	57.27
Hand squeeze, right.....	11	26- 49	36.81
Hand squeeze, left.....	11	20- 58	33.54
INDICES			
Cephalic index.....	11	71- 79	76.65
Length-height index.....	11	64- 78	69.92
Breadth-height index.....	11	85-102	90.92
Fronto-parietal index.....	11	66- 77	72.19
Cephalo-facial index.....	11	88-102	93.65
Zygo-frontal index.....	11	72- 83	78.22
Facial index.....	11	75- 94	87.90
Upper facial index.....	11	49- 63	54.92
Nasal index.....	11	64- 99	73.50
OBSERVATIONS			
Eye Color	No.	%	
Dark brown.....	8	72.73	
Brown.....	3	27.27	
Total.....	11	100.00	

From the photographs it appears that the head hair is either straight or wavy and the face hair well developed. Brow ridges are not very heavy, but the eyebrows do attain great thickness in a few instances. The forehead is low in almost every case, and the malars appear to be quite flat in their anterior aspect. There are no instances of a depressed nasal tip, and the profile of the nose

rarely presents a marked convexity as among Iranian Plateau groups. The gonial region is rather weak in its lateral development and the jaw narrows rapidly in its anterior portion.

Racially, this group of Gypsies is strongly Mediterranean. This is its basic stock. In addition there are some suggestions in the antero-posterior contour of the cranial vault and in the absolute height of the cranial vault of a small amount of Armenoid-Iranian blood. There is not, however, enough of this element to make for the pronounced nasality that is so characteristic of this latter race type.

CONCLUSION

It is the opinion of the author that the detailed analysis of the anthropometric data of the groups discussed in this monograph serves to give a clearer understanding of the racial anthropology and history of the Near Eastern area.

The basic element underlying virtually all the groups in the Near East is the Mediterranean race. Two varieties of the Mediterranean race are discernible. By far the most important and the most heavily represented is the gracile, slender, Mediterranean-Arab type. It is found in its purest form in our series among the Bedawins, in a more diluted degree in the Moslems and in varying proportions among all the other groups. Of secondary ranking is the more rugged, heavy boned Atlanto-Mediterranean type. The latter variety of the basic Mediterranean race never reaches a status of major significance in any of our series but is most heavily represented in the Samaritans.

After the Mediterranean the next most important element in the Near East is the Iranian Plateau. This racial type with its dominant nasality is seldom found in a pure form. When identifiable it is usually discovered associated or mixed with some variety of Alpine stock to form what is commonly referred to as Armenoid. The Samaritans and to a lesser degree the Nusairiyeh present this Iranian Plateau and Armenoid-Iranian Plateau blood most characteristically.

The Alpine race follows very closely on the heels of the Iranian Plateau in the order of contributory elements in the racial set-up of the Near Eastern area. It is a major factor in many of the groups discussed in this study, particularly among the Maronites and the Greek Orthodox series. Also present in the Near East are small amounts of Nordic and mixed Nordic types and some smatterings of East Baltic and Dinaric forms.

Without going into the question of the complicated history of the Near East area, the probable sequence of racial events may be stated as follows: The primary racial group and perhaps the earliest is the Mediterranean with both varieties, the Atlanto and the Arab, making their appearance from early times. Following these people we find the Iranian Plateau race coming from an

easterly direction. This racial strain overlaid the basic Mediterranean blood of many of the Near East groups. Immediately upon the arrival of the Iranian Plateau elements we find a large infusion of Alpine. The subsequent adulteration of the basic Mediterranean was accomplished not only by the intermixture of first Iranian Plateau and then Alpine separately, but also by the comingling in a firm pattern of these two elements in the form which I have referred to as Armenoid-Iranian Plateau. After the Alpine, and in consonance with the increased arrival of the Alpines, we find the appearance of the Nordics, mixed Nordic and East Baltic groups which became particularly strong during the Hellenistic and Roman periods.

The present racial status of the groups in this study may be traced to the constant intermingling, inbreeding and resorting of the above racial elements in varying proportions and in different degrees.

BIBLIOGRAPHY

- COON, C. S.
1931. Tribes of the Rif. Harvard African Studies, vol. IX. Cambridge, 1931.
- EHRRICH, R. W.
— Measurements on Mesopotamian Arabs (unpublished).
- FIELD, H.
1939. Contributions to the Anthropology of Iran. Field Museum of Natural History, Anthropological series, vol. 29, nos. 1-2. Chicago, 1939.
- HASLUCK, M. M., and Morant, G. M.
1929. Measurements of Macedonian men. Biometrika, vol. XXI, pp. 322-331. London, 1929.
- HUGHES, B. O.
1938. The physical anthropology of native born Armenians. Thesis in Widener Library, Harvard University. Cambridge, 1938.
- HUXLEY, H. M.
1915. The Samaritans: Anthropology. The Jewish Encyclopedia, vol. 10, pp. 675-676. New York, 1915.
- PEARSON, K.
1924. Tables for statisticians and biometricians, Pt. 1. (2nd edition). London, 1924.
- SELTZER, C. C.
1936. The racial characteristics of Syrians and Armenians. Peabody Museum, Papers, vol. XIII, no. 3. Cambridge, 1936.
- SHANKLIN, W. M.
1935. The anthropology of the Rwala Bedouins. Royal Anthropological Institute of Great Britain and Ireland, Journal, vol. LXV, pp. 375-390. London, 1935.
1936. Anthropology of the Akeydat and the Maualy Bedouin. American Journal of Physical Anthropology, vol. XXI, pp. 217-252. Philadelphia, 1936.
- SHANKLIN, W., and Izzeddin, N.
1937. Anthropology of the Near East female. American Journal of Physical Anthropology, vol. XXII, pp. 381-415. Philadelphia, 1937.

